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ASTOR, LENOX
TILDEN FOU

Ellis
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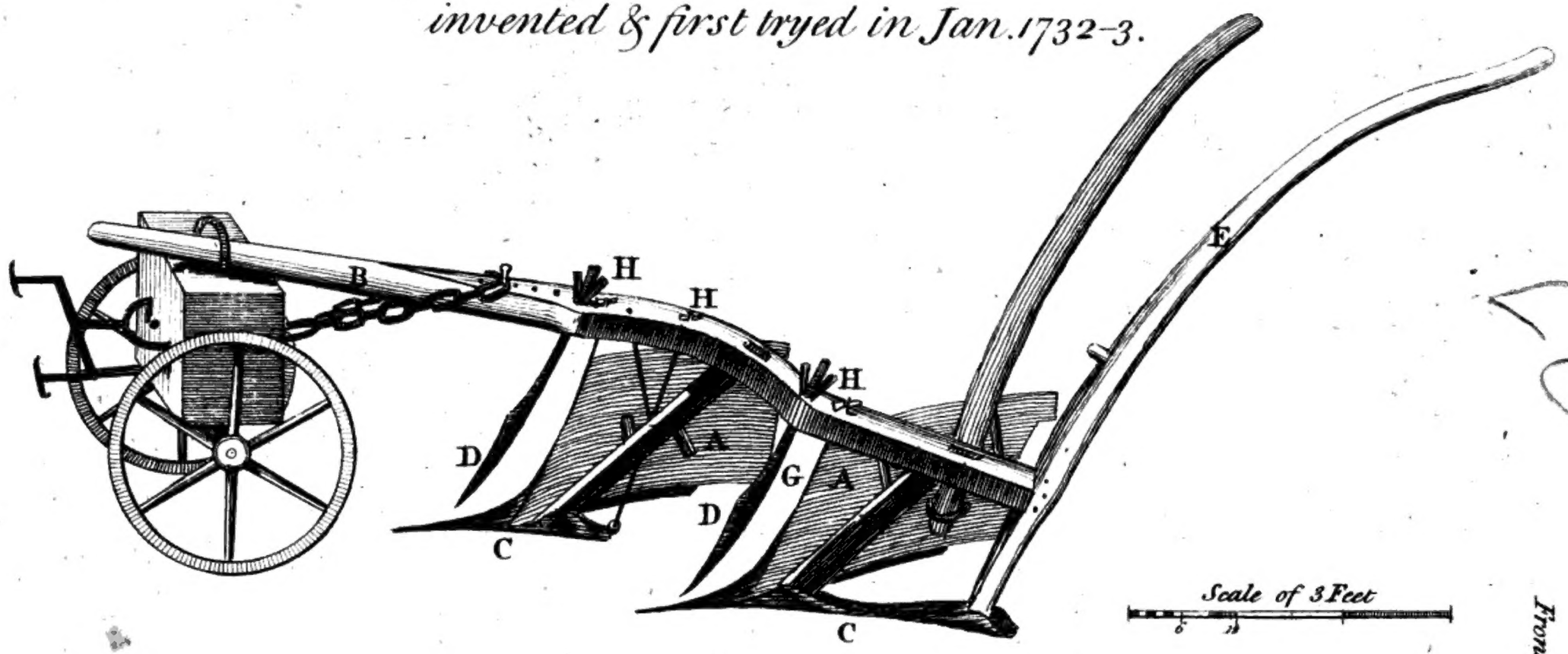
The Wheel double Plow of Harlford Shire invented & first tryed in Jan.1732-3.



A *Broad Board*
B *Beam*
C *Two Iron Shares*
D *Two Coulters*
E *Staple*
F *Sheafs*
G *Hooks*
H *Keys that locks the Hooks which fasten ye Shares.*

Frontispiece Vol.I.

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ELLIS'S

HUSBANDRY,

ABRIDGED AND METHODIZED:

COMPREHENDING THE MOST USEFUL ARTICLES OF

PRACTICAL AGRICULTURE.

IN TWO VOLUMES.

VOL. I.

LONDON:

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PREFACE,

BY THE EDITOR.

WILLIAM ELLIS, of *Little Gaddeſden*, near *Hempſtead* in *Hertfordſhire*, lived near fifty years on one farm in that pariſh. His education was ſomething, not much ſuperior to that of the general run of common farmers, but he inherited from nature ſtrong and active parts, which enabled him to riſe into a ſphere ſuperior to his brethren, and make his name familiar throughout all Europe; for his works have been quoted and commended by numerous foreign writers on the ſubject of huſbandry. This is not ſurpriſing, for although his ſaults were very numerous, yet being a plain farmer, dependant only on his ſkill in common huſbandry for many years, his practice could not fail of being extenſive, and his obſervations numerous; ſo that his works, as he

borrowed nothing from others, were really original, and contained in numerous inſtances more genuine knowledge than far more ſhining performances abounded with. It may be aſked, how a man poſſeſſing a good underſtanding, long practice, and attentive obſervation, ſhould produce ſo many faults as *Ellis?* and in truth his faults are ſo numerous, that they have prejudiced many good judges againſt his works; inſomuch that ſome will not allow him any merit, and *others are very ſparing in their praiſes of him.* A ſhort enquiry into this part of his life will explain the ſeeming contradiction.

His firſt work, *The Timber Tree Improved*, was what one may call the ſpontaneous production of his pen; the ſucceſs of which work (for it ſaw three editions in leſs than three years) induced *Oſborne* the bookſeller to recommend other undertakings of the ſame ſort to him: then it was that he came to monthly works, and more voluminous productions; in which, to make up a ſtipulated quantity agreed upon with his bookſeller, he gave into all thoſe random ridiculous

lous details which have ſo much diſgraced his page. But theſe works, bad as ſome parts of them were, introduced him to much travelling in the character of a ſeedſman—a ſeller of implements—and in ſhort, as a man who executed any ſort of country buſineſs at a given price. Any perſon in Great-Britain might ſend for him, on paying for his time and expences. This part of his buſineſs, carried him over moſt parts of the kingdom, and wherever he went he was never backward in noting all that was peculiar in the conduct of their agriculture. Thus had he, beſides long experience at home, the fortunate opportunity of viewing the huſbandry of moſt parts of the kingdom.

With ſuch united advantages, he certainly poſſeſſed a fund of country knowledge rarely known to be the ſhare of one man: his latter works ought therefore to have been peculiarly valuable; but having engaged for larger quantities of MS. than his materials of real excellence would allow, all his pieces are nearly equal in being too much filled with traſh.

This did his reputation much miſchief, and at laſt injured him ſo much with the public, that he no longer found any pecuniary advantage in writing, but ſtuck to his farm; and very wiſely depended on that alone. Another circumſtance contributed not a little to damping his fame as a publick farmer. Many gentlemen fond of farming called on him at *Gaddeſden* in expectation of ſeeing on his farm, every thing excellent in huſbandry that he had ever mentioned; but inſtead of that, they ſometimes found his farm in bad common order, owing to his frequent abſence; as to tools, of which he wrote ſo much, few were to be ſeen, and thoſe bad, and in every reſpect a very poor appearance of ſpirit or conduct. This did *Ellis*'s reputation no ſmall miſchief, though very unjuſtly; for nothing could be more abſurd than expecting him to practiſe all he recommended; he depended on his farm for bread, and would therefore have been very imprudent to *practiſe* with as little ceremony as he *wrote*. He went on in a common ſtile, and in that was really a good common farmer on his own farm; but thoſe who viſited him expected to ſee the *moſt excellent*

excellent three pulley drill *plough*; and the *admirable fine horſe break* at work in every field; and at leaſt half the farm drilled and horſe-hoed. Their diſappointment only proves that *Ellis* had more ſenſe than they imagined: and as to other varieties of inſtruments, he procured and ſold them to any perſons, but it did not therefore follow that he was to keep them ready made on an uncertainty of ſale. Such gentlemen, therefore, as condemned *Ellis* as a writer becauſe he had not to *ſhew* all on which he *wrote*, were at leaſt unreaſonable in their expectations. Truth and good ſenſe, are undoubtedly ſuch in an author's page, though not in his practice; of which many inſtances might be quoted from various parts of his works—inſtances which will ever prove his deep knowledge of huſbandry, whether he practiſed them or not.

Suffice it to ſay, that he had ſtrong parts—long experience—attentive obſervation—and numerous opportunities—I aſk no further. You may tell me of ten thouſand abſurdities if you pleaſe, but certain I am that

ſuch a man muſt in his work, abound with juſt and practical ideas. And that this is really the caſe with *Ellis*, I hope the following pages will clearly aſcertain.

His writings have been much neglected for near thirty years; I think very unjuſtly: becauſe in works that concern the practice of any art, men ſhould willingly overlook abſurdities, in order to reap profit by the ſterling good ſenſe ſcattered among them: thoſe that will not take ſome trouble of this ſort, deſerve not to make great progreſs. The neglect into which they are fallen is certainly owing to the very numerous paſſages either abſurd, trivial, or tedious; all theſe paſſages we ought in candour to attribute to his connections with his bookſeller, who inſiſted on certain quantities of monthly matter; to make up which the author wrote not what was beſt, but what came firſt: his real and genuine knowledge which every where ſhines through even this cloud of rubbiſh, is fully ſufficient to ſhew how well he underſtood huſbandry, badly as he might ſometimes write about it.

The

The deſign of this edition of his works, is to give the world all his obſervations that ſeem important, and practical; excluding all thoſe paſſages which it is ſuppoſed he wrote more to form a bulky pamphlet, than for any value he thought they would be of to the public. In a word, to give ſuch a book as it is preſumed *Ellis* himſelf would have given, had his unbiaſſed judgment been ſingly his director. Upon this plan all his gypſies, wenches, thieves, rogues, &c. are diſcarded, and his old woman's tales which filled a page but diminiſhed from its value, are thrown aſide. Other deductions are made which however require an explanation.

Ellis made a traffick, ſometimes profitably, of ploughs, drill ploughs, horſe breaks, &c. This induced him to be very voluminous in their deſcription, and very hyperbolical in their praiſe. Such paſſages I think are on the one hand almoſt unintelligible for want of plates; and on the other hand very ſuſpicious, from being in the ſale a ſource of profit: they are further much inferior to ſimilar inventions that have ariſen

ſince; ſo that it would be ſwelling theſe pages prodigiouſly to inſert all his accounts of this ſort, without adding any thing to their value.

Another part of his works which is left out of this edition, is his recommendation of ſteeps, liquors, receipts, noſtrums, &c. ſome of which he ſold, and conſequently wrote of them with a view to increaſe the ſale; others are uſeleſs, and all too unimportant to obtain a place among the better exertions of his underſtanding and his practice.

I have likewiſe been cautious of admitting the drilling and horſe-hoeing parts of his books; it is evident that his own practice was not the foundation of his ideas, and his praiſe of the new mode was too connected with his advantage in ſelling implements; beſides which, later writers have ſo much exceeded him that the reader ſuffers no loſs.

But in ſtating and explaining the reaſons of good common management, the caſe is far

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far different from all theſe: we then plainly perceive that he knew what he wrote of; he ſpeaks clear, ſound, good ſenſe, and ſo much to the purpoſe that I will venture to aſſert no writer has in this path exceeded him: but the public have paid ſo little attention to his works from the quantity of rubbiſh they contain, that *Ellis*'s real merit is little known. It is not at preſent recollected, that all the ſpirited practices of excellent common huſbandry, which have of late years made ſo much noiſe, are clearly aſcertained by him, their merit ſtated, and their conduct explained. The beſt turnip and clover huſbandry are in particular ſet forth, as practically as they can be at this day: the whole conduct of manures, though not philoſophically handled, yet are ſtated with practical preciſion; and the common management in them fully explained. A full knowledge of the uſe of ſoiling cattle with tares, clover, &c.—ſaving the drainings of the farm yard—forming compoſts—the variations of ſoils which require correſponding variations of manure and tillage (an article of great importance, and fully treated by no other writer)—

and

and the whole management of ſheep—are among many other inſtances of *Ellis*'s thorough knowledge in common huſbandry.

Reſpecting the mode of regiſtering his obſervations, it is nearly retained; for I do not conceive it fair to alter the turn of any paſſage, the only liberty I have taken is to draw a pen through what I think trivial or exceptionable, and to change the heads of his paragraphs, which all begin, *how* this happened, and *how* ſuch a man did ſo and ſo; by leaving out the word *how*, and giving only the ſubject of the paper. As to the caſes he ſtates in the practice of his neighbours, I apprehend the method quite unexceptionable, and accordingly retain it with the names of the perſons.

Having premiſed theſe circumſtances, I ſhall no longer detain the reader, but take my leave with obſerving, that the writings of this plain country farmer ſhould not be held cheap, becauſe they abound with none of that ſhewy ſcience which glitters in the works of ſome other authors on this ſubject; ſuch works may meet with great applauſe from

from thoſe who are ſatisfied with nothing but philoſophical reſearches, and having been accuſtomed to this garb of moſt other ſubjects, muſt have their philoſophical farming too; but the true practical man, whoſe income depends on well tilled fields, may in the ſimple page of this huſbandman, meet with more valuable hints than in all the philoſophical treatiſes ever written. Some of which on the ſubject of agriculture have lately appeared, that are ſo very learned that none but chymiſts and mathematicians can underſtand them; ſuch works may be very fine things, but perhaps they may be too fine to do any good. *Ellis* has his merit, though he is neither a chymiſt nor a mathematician.

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ELLIS'S HUSBANDRY.

BOOK I.

OF SOILS.

CHAPTER I.

OF CLAY.

RED CLAY agrees with almoſt all ſorts of dreſſings, and is not of that ravenous nature as gravels and ſands, *&c.* are; and to ſay the truth, leſs dreſſings and more ploughings, beſt ſuits this ſort of clay, which I have often ſeen, returns its dung to view that had been ploughed in a year or two before; but above all dreſſings, none agrees ſo well with it as dry ones, ſuch as lime, chalk, ſoot and aſhes.

White clay, or tobacco-pipe clay, is not ſo tough, cold nor moiſt as the red clay, but has looſer, warmer and drier parts, which render

it a beneficial earth: this land will be brought into a condition for ſowing of grain with leſs ploughings, and when fully encouraged by good tilths and dreſſings, will yield vaſt crops of grain, as may be annually ſeen in ſome parts of *Ivinghoe* pariſh; this by the more able and better ſort of farmers is double dreſſed by fold and cart dung, and frequently returns 40 buſhels of wheat on an acre; and in this do barley and peaſe mightily thrive, as well as wheat, eſpecially in a wet ſummer, but beans do not ſo well anſwer.

This flat white earth has, beſides its many good qualities, one very bad one belonging to it, that often ruins part of its crops, while in their youth, and that is by froſts, winds, and rains. The froſt ſooner ſhatters and crumbles this earth than any other, that I know of, which in ſtitches or ridges, makes it fall from the roots, and leaves many of them bare; this evil is alſo much increaſed by the winds and rains, for in the winter and ſpring, the violent winds that ſucceed the froſt, blow this ſort of earth from the roots of the grain, and what that miſſes, the rains compleat, by waſhing the earth away from many of the roots; therefore the fold is here the very beſt remedy, which by the tread of the ſheep, makes this ground turn

before the plough in a clotty ſubſtance, and then it is in that order the farmer likes beſt.

For as this white land is eaſily brought into a tilth, and ſo becomes finely powdered, it produces vaſt quantities of poppy, which is the chief weed that hurts this ground, and then the farmer is like to ſuffer; but the more to prevent that, and alſo the damage that often happens by the froſts, winds and rains, they commonly ſow this ground before, as well as at *Michaelmas*, with wheat, and run the fold over it afterwards, in order to ſettle and fix the earth about and upon its roots, that the weather may not have power to ſpoil the crop.

Again, after this they uſe the roller, by drawing it acroſs and along the ſtitches, to faſten and incloſe the roots of the wheat, which makes a ſecond and double ſecurity againſt the wind, rain, ſun, and froſt, and is much better than top-dreſſing the grain after it is in the ground with dung, by reaſon the dung will by its heat keep the ground in a looſe condition, and ſo hinder the roots from taking faſt hold of the earth; this makes the fold on this earth preferable to dung, although it is ploughed in, and alſo to light hand-dreſſings that are ſown early in the ſpring on this ground, as ſoot and the other ſorts. In this white clay, clover will grow, though not ſo well as in the red, and yellow, and black

clays; and therefore trefoile and ſainfoine are generally here ſown before it; thorns and other hedge-wood will grow well in this ſoil, and ſo will elms.

As this land is of a warm and ſomewhat dry nature, they ſow their wheat, and their *Lent* grain early, that they may get cover before the winter froſts for the wheat, and ſhelter againſt the ſun's heat in the ſummer; and more effectually to come by an early and full clover, they ſow more ſeed in this ground than ordinary, to ſhade the roots; and even about *Chriſtmas* I have known them to ſow peas, ſo that great dreſſings, and thick early ſowings in this ſort of white ground, are perfectly neceſſary; but particular regard is generally had by all occupiers of this white ground, to endeavour the ſowing it in wettiſh weather, that this ground may turn up clotty before the plough, whereby the ſeed is the more faſtened in it, the poppy prevented, and the crop better ſecured.

Yellow clay requires ploughing in much the ſame manner as the red clays, and as it is more loamy than the red, it is certainly the richer ſoil, and in it both trees, grains, and graſs will grow and thrive much faſter; ſo that as this is the better ſort, I need ſay little more, than that the ſame culture and management, that is requiſite for the one, will do for the other.

Black

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Black or blue clays, are the very beſt of all clays; it is this and the black clayey loams, that impower the fertile vale of *Ayleſbury* to vie, I am of opinion, with the richeſt lands in *England*; and it is from hence, that the vale of *Eſham*, *Rumney* Marſh, and other low grounds, furniſh this nation, as from a magazine, with the greateſt quantities and beſt ſorts of wheat, beans, beef and mutton, *&c.* This black earth produces the beſt and fineſt red *Lammas* wheat, and in ſuch large bodied corns, as intitles their ſellers to 6*d.* a buſhel more than the chiltern men can generally get for theirs, although of the ſame ſort, becauſe theirs will outweigh ours by a conſiderable deal.

However, I have now the ſatisfaction to ſay, I hope in a few years our chiltern country, by the help of ſowed graſſes and turnips, will be able to get better crops of wheat and other grain than heretofore, and little inferior, if not as good as the vale. This black earth is compoſed of a black, blueiſh clay, with ſome black mould, and as the latter is more or leſs in it, it has ſo much a proportion of the loamy nature; it lies there of a conſiderable depth, free from ſtone, and clear from the great deep hog-weed, cat's tail, and other trumpery, that the chiltern men in many places at this day are, through ignorance, troubled with, to the deſtruc-

tion of many of their crops, as I ſhall further make appear hereafter.

There is no earth in the kingdom will carry greater burthens of corn and ſtraw on it than this will, and with as little dreſſing as any; for indeed the main kind of this black vale earth, is all a ſort of marl, and though ſometimes of a ſtiffiſh nature, at others it is as looſe, by reaſon of the froſts and winds great power in bringing it into a crumbling, ſhort, looſe condition, ſo that here they commonly plough their very wheat in as well as their beans, for the ſake of making it ſtand faſt in their great open fields, their irons wear little, their weeds only thiſtles, docks, and hale-weed, their dreſſings cheap and on the ſpot, and their rents and ſervants wages proportionable; but then theſe conveniences are not without their inconveniences, for they ſometimes, I may ſay commonly once in about three years, loſe whole flocks of ſheep by the rot; their lands often flooded, their horſes heels frequently cracked by the dirt, their firing ſcarce, as being obliged to burn the ſtubble of wheat, barley and beans, inſtead of wood; and in ſhort, they had need have ſomething extraordinary to make them amends for living amongſt mud, dirt and water, where not only their wheel carriage is confined good part of the winter, but alſo themſelves from viſiting even their near neigh-

neighbours; beſides the almoſt conſtant and greateſt misfortune of all, of living in an unwholſome, agueiſh air. It is true, they abound in plenty of corn and the beſt of graſs; but then they are ſtrangers to that grand conveniency of enjoying fields of turnips, and ſowing foreign graſſes, by which, if rightly improved, we may make our chiltern as productive as their beſt grounds in the vale; and indeed it is this that is my ambition and aim, to ſtudy and find out by experience, that art, which will ſo help nature as to make poor land rich, by impregnating it with thoſe fertile ſalts, and nitrous, ſulphurous qualities, as to render it in effect equal with this black, marly clay, which I am perſuaded may be done in numberleſs places, in this our hilly country: not that I pretend to ſay a chiltern man can farm as cheap as a vale man; that is morally impoſſible, from the hard texture of our earth, and the ſtones that are therein, which ever will be the cauſe of a greater charge of ſmith's and wheeler's bills, &c. and a larger expence of hand-dreſſings to ſupply the hungry, lean nature of our high and dry grounds: but then we have our advantageous returns, of turnips, ſowed graſſes, firewood, and other ſorts, beſides the enjoyment of the third year (that with them lies fallow) under ſuch feeding which they cannot have, becauſe

on black, clayey mould that is deep and wet, neither the turnip, nor artificial graſs will anſwer, by reaſon of the cattles ſtolching, nor will the turnip any more than the cherry or beech thrive in their wet, ſpewy, clay ground.

The Culture of Clays.

The red clay being the moſt obdurate ſort, and the moſt difficult to reduce to a fine tilth of all the reſt; the art and labour of the moſt accurate ploughman is ſometimes foiled in his endeavours to accompliſh it, by reaſon this earth is made worſe to anſwer that end, by the extremes of wet and drought. By wets it becomes more faſt and tenacious than at other times, as lime is by water converted into a more viſcous, binding nature; ſo that when the clay is in this condition, the coulter cuts through it without breaking the clots, which cauſes ſo little impreſſion and alteration in its body, that oftentimes three ploughings in ſuch ſort, are to no greater purpoſe, than one in chalks, gravels or ſands; this has been ſo often manifeſtly proved, that notwithſtanding all the fallow ſeaſon has been employed in ploughings and croſs ploughings, and as frequently harrowed; yet in a wet ſummer I have known it out of the farmer's power to get this ground into a fine tilth, which for all their dreſſings

of

of dungs and ſoot, has ſpoiled their crops of wheat, by the black-bennet, horſe-gold, and other weeds growing amongſt and crippling the corn, which is the ſole occaſion that chalks and ſands are made uſe of, to alter its ſtiff and ſour nature; and this it will effectually do, if the chalk is good, timely drawed, enough put on, and rightly ploughed in.

By droughts this clay is hardened, and when ploughed in this ſeaſon, ariſes in great clots, that will not yield to the coulter's cut, nor the ſhare's break, but will rather ſuffer driving up together in clotty heaps, than breaking into a ſmall body; and therefore it is that the red clay when under ſuch an untoward texture of body, is ſuffered to lie expoſed to the weather, till a good ſhower of rain falls that will ſlacken, ſoften and meliorate its hard parts, and make it fit for reduction by the harrow-tynes, and then no time ſhould be loſt in taking this advantage of the clay's alteration, by harrowing it thoroughly both ways: for, as I have generally obſerved, this evil of a ſour tilth is partly occaſioned by want of timely ploughings and harrowings according to our maxim; clays cannot be ploughed too often, nor gravels, chalks and ſands too ſeldom. Therefore if a wheat ſtubble ground is to be got in tilth for peas againſt the next ſpring, then ought the ſtitches to be

ploughed

ploughed up into bouts at *Alhollantide*, and left all the winter; then before you ſow the peas, harrow it, and ſow them in four thoroughs in the ſame ſtitch in the method it firſt lay, then after the pea or bean is ſown, harrow it. Some will plough the ſtitches into broad lands at *Alhollantide*, and let them lie all the winter, and harrow the latter end of *March*, when they plough acroſs the broad land and ſow in four thorough ſtitches. The other ſort of culture requiſite for red clay may be the very ſame as is ſet down in the culture of loam.

Yellow clays call for much the ſame huſbandry.

Black clays are different, becauſe this earth being of a ſhorter nature than either red or yellow, will yield much ſooner to the operation of the plough, therefore fewer ploughings will here do more ſervice, becauſe this earth muſt not be too fine when ſown, for the foregoing reaſons: formerly they ſowed this ground always in broad lands, but now they ſometimes (but ſeldom) ſow it in ſtitches for wheat, but nothing elſe. The broad lands hold water more than a ſtitch, and the ſun cannot dry it as it will a ſtitch.

Black clays are a medium ſoil between the white and red clays, as to the ploughing part, and therefore too ſeldom or too often

plough-

ploughings are equally a fault here. This earth lying moſtly in vales, is commonly ploughed with the foot plough only one way in broad lands, by reaſon they lay it in half acre pieces, and that as high as they can, to avoid the wet's pernicious conſequence; ſo that here they directly draw the plough up and down by dividing the half acre, and turning the land two contrary ways, by which means a henting or large thorough is left in the middle.

In the large and fertile vale of *Ayleſbury*, as well as in moſt other low grounds, their earth is generally of a black and bluiſh clay, or a marly dark coloured loam, clear of ſtones, which in winter is very apt to ſtolch by the tread of cattle, and by the waſh of frequent rains that eaſily converts it into a muddy conſiſtence, and in froſty weather from a ſtiff clot, it is preſently reduced into a ſhort crumbling looſe body, which readily lets out the ſpiry blade of new ſown corn; alſo in this their low ſituation, they are very apt to ſuffer by floods, which ſometimes are ſo long retained on their ſtiff ſoil, that the vale appears almoſt like a little ſea, ruining their grain, and rotting their ſheep: on the contrary, in the ſummer time, their open fields are ſoon dried, and their clayey ſurfaces become ſo hardened, as to cleave aſunder much more than any other ſort of land, whereby their

barley

barley in particular is often ſtunted in its growth, and dwindles into a ſhort, lean, thin crop, on their high, expoſed, ridged lands; which at firſt was invented for the ſecurity of their growing corn againſt overflowing waters.

In the vale of *Ayleſbury* and many others, their ground for the moſt part lies in ridge half acre, and whole acre lands, which are never ploughed acroſs, but kept up to their ſtinted breadth, length, and height, according as they lie wetter or drier: and, as their ſoil is generally a bluiſh clay, or ſtiff black loam, nothing better anſwers their purpoſe than wheat and horſe-beans. But as all ground naturally affects change, of late many have ſown a tilth crop of barley, where wheat and beans have been before, and found it ſucceed to their wiſh. Peaſe they ſeldom ſow, becauſe this rich earth is very likely to cauſe them to run into ſtraw, and too little into corn.

CHAP. II.

OF GRAVELS.

GRAVELS. This earth has variety of natures according as they ſeverally abound with diverſities of earths, or ſtones. There are the ſharp or ſtony gravels, loamy gravels, clay gravels,

gravels, ſandy gravels. On all which I ſhall diſtinctly make my remarks, as they have occurred to my knowledge; having all but the ſandy ſort more or leſs in my own fields.

Sharp Gravels.

This earth is compoſed of ſmall, ſharp ſtones, mixed with ſome mould, which is better or worſe, as the ſame is in a leſs or greater proportion: if more ſtone than mould, then it is ſo much the worſe, becauſe the ſoil is ſo much the looſer; if almoſt all ſtones, as ſome is, it is ſo much the worſe ſtill, as ſome is near the top of *Dunſtable Downs*, and in many other places in this county, not worth above 1*s.* or 2*s.* 6*d.* an acre; becauſe the water runs ſo ſwiftly through them, that it waſhes the dungs, or other dreſſings, away below their roots; ſo that the fibres of corn or trees ſoon become hungry, pine, and oftentimes periſh for want of the dung's nouriſhing ſubſiſtence; that in clays and loams have firm and holding bottoms, and will lie two or three years to viſibility. There is alſo another ſort of hungry gravel, that is made up chiefly of the round, blue pebbles; this of all others is reckoned the worſt, and of the moſt cormorantine nature; this is ſuch a devourer of dung and other dreſſings, that in many places they utterly refuſe to plough or ſow it,

it, but let it run with what poor graſs nature in a ſmall degree throws up.

Of this laſt ſort there are great quantities about two miles from me, which might be vaſtly improved, did not the tenant's obſtinacy prove a barrier to his intereſt. I was lately concerned at an appraiſement of a crop of ſeveral ſorts of corn that grew on ſuch ſort of ground, as theſe two are. Some of the wheat at harveſt was dear in my judgment of 20*s.* an acre, notwithſtanding it was dreſſed, which helped to break the tenant, and obliged the landlord, who was but in indifferent circumſtances himſelf, to take it into his own hands: I told him, to improve it to a good account, was to dreſs it with *French* wheat, but I cannot underſtand my advice had any more effect, than if I had told a paſſant traveller of a mine in *India*.

One farmer ſaid to another, *Fear not, if the ſtones are big enough, you will get a good crop.* For, when they are ſmall, round, blue pebbles, it is a ſure ſign of a very hungry poor ſoil.

Loamy Gravels.

Are thoſe of a better ſort than the former, for under theſe terms as much or a greater quantity of mould is ſuppoſed to be, than ſmall ſtones; this I may juſtly term a fertile ſoil if rightly managed, becauſe here is ſome hold for the

the roots of trees, corn, or graſs to receive nouriſhment from: and as all gravels are of a kerning, or corn-yielding nature, when ſupplied with heaven's propitious influences, and man's due aſſiſtance; I have known this ground to return above eight quarters of barley on an acre, and other grain proportionably.

Moſt gravels are of a hot, dry, looſe, hungry, and binding nature, which oppoſite terms, though ſeemingly inconſiſtent, yet carry experimental truths with them. Looſe, dry and hot, I ſay, for that this compound ground of ſtones and mould cannot by their make and texture ſo unite, as to be a cloſe body, by reaſon of the various ſhapes and bigneſs of the many ſtones with which the mould is conjoined, as a ſmall one amongſt two great ones, or angled ones among globular; and ſo the reſt are of ſo many different forms, that muſt cauſe a hollowneſs and disjunction of parts with the earth, notwithſtanding the moulds enveloping many of their irregular ſides; from hence it is, that the rains and ſnows ſo eaſily make their paſſage through the cavities of this ground, to the great prejudice of the trees, corn, or graſs that grow therein. Hungry; becauſe the dungs and dreſſings are ſo readily carried off, and waſhed away paſt recovery; that without more than common ſupply of mould and dung, this will (I am of opinion)

prey

prey on its own mould ſubſtance, and ſo grow leaner and more barren, by ſowing its moſt vital part the mould. This leads me to take notice of the notion of ſome, that think theſe ſmall ſtones breed and are nouriſhed by the ſun, air, rain and mould; and indeed it ſeemingly carries a probability with it, for it is ſurpriſing to find hardly any diminution in a ſmall field, where vaſt quantities have been carried off to mend the highways: if ſo, then by conſequence the mould adminiſters great part of their ſuſtenance, which perhaps may be one reaſon why theſe gravels are ſo voracious.

I know a great gentleman that now wants ſeveral of the great ſtones that we call growing ſtones, compoſed of vaſt numbers of ſmall pebbles that lie in little cells or holes; his uſe for them is to put them down in his grounds for laſting boundary marks to the ſeveral pariſhes, that triennially make a progreſſion, and cuts deep and large marks in his great trees for their future knowledge, how far their pariſh limits extend, to the damage of the ſaid trees, which he hopes to prevent by placing theſe ſort of growing or ever durable ſtones at the proper places. And poſſibly, nay likely, they may deſerve thoſe names, though imperceptible to our eyes or memory.

Theſe gravels are binding; this needs no other proof than the many misfortunes

accruing by its hard and cruſty ſurface, ſo made by the weights and baſhings of the heavy rains; and more or leſs ſo, as they ſooner or later ſucceed the ploughings and ſowings; for if they come before this ſort of earth is ſettled by time, it will harden it the more, and ſometimes cauſe it to run as it were into a pan-cake ſpread, particularly on deſcents, and bind the wheat, peas or barley in ſo faſt on all ſides, that they are often ruined, as not being able to make their growing progreſs, for want of room in the earth, for the ſwell and multiplicity of their ſeveral ſtalks; and this I take chiefly to be occaſioned by the rains waſhing the mould on the ſtones, which naturally joins and cements their hard bodies to the moulds ſoft, plaſtic nature, and thereby becomes one cloſe and obdurate ground.

A Case.

A field near me had a gravelly, pebbly bottom, covered by a black, light mould of about four or ſix inches deep; this was a lay of natural graſs about twelve years ago, ſince which it has almoſt conſtantly been under the plough: this ſort of ground is naturally called a dying ground from its great lightneſs, becauſe its earth is very hollow and its bottom retains no wet; ſo that though it was well ploughed, well dreſſed

and a flouriſhing crop of wheat with large ears, yet it moſtly died, and the weeds, as the May-ſeed, horſe-gold, poppy, and wild oat got up to that degree this wet ſummer, 1732, that it was hardly worth reaping; and indeed it is the nature of moſt grounds, loams and clays eſpecially, to produce the wild oat if ſowed too conſtantly and too long with corn.

The remedy of this is, to give it conſtantly its due courſe of fallowings, whereby it may enjoy a thorough ſweetneſs; and let the dreſſing be every wheat year or barley ſeaſon, a manure accordingly; in the wheat year the fold is certainly the greateſt friend to this ſort of ground of all others, becauſe it will tread this light earth, and bring it under a cloſer texture of body, than otherways by its own nature it would be; and therefore far better for the crop of wheat that is to grow in it, and more diſcouraging to all manner of weeds and worms that will be ſure to infect this light ground, eſpecially in wet ſummers, if care is not made uſe of to prevent their ill conſequences; beſides, the fold by the preſſure of the ſheep's feet and bodies enables this hollow land to ſuſtain and hold the roots of the wheat faſt, that the winds and rain cannot ſo eaſily force it down, which they will certainly do when that is ploughed often and ſowed in a fine duſty tilth, and this more ſurely

if

if manured with dungs of horſes, cows and ſwine, that increaſe the ground's lightneſs and keep it hollow afterwards. It is therefore that this looſe earth and dry bottom ſhould be ploughed and ſowed in a wettiſh time, for that contributes vaſtly to its binding, and cauſes it to remain ſo during the next winter and ſummer that the wheat is to grow in it. As to barley and other ſeaſons at the ſpring of the year, the caſe is ſomewhat altered, by reaſon the wets that generally fall then, help to the faſtning of this ground; that may therefore be ploughed and ſowed earlier than clays in order to enjoy the ſame; beſides, the *Lent* grain has only about half the time of the wheat to be in this earth, which gives not that opportunity to weeds for their predominancy as the long wheat ſeaſon does: but ſuch ground as this is beſt laid down with artificial graſs, in order to obtain a natural ſward, which this earth will naturally run into, and much quicker if encouraged by ſowing the ſeeds of fine upland, meadow hay amongſt the clover, trefoil or ray graſs. The occupier of this field, notwithſtanding he has often ploughed and ſowed it, was ignorant of the true nature of this ſoil that lay contiguous to three other fields belonging to the ſame perſon, as believing it to be of much the ſame nature as the reſt, and therefore gave it the ſame uſage; but herein

he remained miſtaken, till a perſon of better judgment than himſelf convinced him of his error.

All which plainly ſhews the excellency of this knowledge in the nature of earths; and as it is in the animal oeconomy, that there is no right application of a remedy without the diſeaſe is firſt known; ſo it is here that every farmer ought to have made it his primary ſtudy to inform himſelf of the ſeveral ſorts of ground that often belong to his farm, and that beſides his own judgment to conſult his neighbours, who as natives on the place may be able to let him know more than the dictates of his own reaſon, that formerly were more remote from the ſame.

Clay Gravels,

Or clay, loamy gravels, happen to be part of the ground of ſeveral farms in this country: their nature varies but little from the gravelly loams, but wherever the red clay is part of the ſoil, there will be occaſion for more ploughings, and warmer dreſſings than in any other ſort of gravel.

Sandy Gravels,

Are of ſo looſe a nature, that they are ſooner brought in order than any of the reſt, and will bear very good crops of corn, if duly aſſiſted with manure; and that much forwarder than the

the other gravels, whereby peas and turnips may be had in one and the ſame year.

The Culture of Gravels.

Sharp, or loamy Gravels require much the ſame ſort of ploughing and harrowing, as alſo the ſame ſort of dreſſing; theſe as well as the ſandy ſort are in the number of the light, ſweet ſoils, and are all of them ſo different from clay, that too much ploughing here will wear out the ground, as too little in that ſoil will not bring it into a bearing condition: a good ſeaſon of fair weather is more than ordinary requiſite in theſe ſoils to prevent its binding; and alſo ſhallow ploughings when grain is ſowed on broad lands on the ſame, otherwiſe it is in great danger of being hindered getting through.

The clay gravels are ſtill more binding, and therefore muſt have more ploughings.

Gravels, of all other ſands, ſtand moſt in need of being brought into a condition, as will ſtrictly anſwer this title; to find out which, in a true beneficial manner, many have been the attempts, and various efforts of farmers; which as it is a matter of great conſequence, I ſhall here mention ſeveral particulars. Firſt then, I knew one, whoſe farm of about 60*l.* a year was chiefly a ſharp and loamy gravel, but not of the blue pebbly ſort; this man carried

from his farm juſt by me ſeveral waggon loads of peas, thetches, chaff and other grain to *London*, in order to load back again with coney-clippings, horn-ſhavings, ſoot, &c. This dreſſing did not the firſt year do quite ſo much good as afterwards. It happened by the landlord's diſguſt, that the man after laying out great ſums on this ſort of dreſſings, was forced off his farm, and ſucceeded by another good huſbandman, who directly enjoyed the former's expence of dreſſing; for this ſort of manure is not eaſily devoured by the gravels, nor waſhed away, as being of a tough, ſpungy nature; ſo that it will lie and hollow the ground, retain the wets, and ſo keep the ground moiſt and warm for ſeveral years. To this was joined another expence, and he was the firſt man in theſe parts that chalked gravels to the wonder of the other farmers about him. However, this anſwered its full end in all reſpects, for it abſolutely hindered the gravels from being cloſed and bound by the rains or ſnows, added a more loamy part to the ſtony part, made it plough much better, and kept it in a pure, ſweet condition, that has for ſeveral years bore extraordinary good crops of all ſorts of grain that grow thereon; but the uſe of theſe ſort of light dreſſings from *London* are much more laid aſide, and leſs regarded than formerly, by reaſon of the great numbers of ſheep that

are

are kept and folded on theſe gravels and other grounds, that are found far cheaper, and I am certain, are quicker and better dreſſings.

Some will in lieu hereof lay on and plough in their long horſe litter, allowing it to anſwer beſt in gravels, as being of the horn-ſhavings nature, tough and ſpungy. Others will lay on mud, or highway ſtuff, which indeed has vaſtly enriched this ſort of ground, eſpecially if it is a true mud, free from ſand. For ſomething muſt be done to theſe gravels by way of dreſſing, or elſe nothing but poverty will ſucceed in this hungry ſoil; and to ſay the truth, if any ground ſtands in need of double dreſſing, this does; and then there is none will pay better, by returning the beſt of crops from its kerning quality.

But the horſe litter will anſwer very well another way, that is, by laying it on the top of the ſtitches on broad lands, as ſoon as the wheat is ſown (for then it will grow thorough it.) This is an excellent way to plough ſome in; and afterwards lay ſome all over on the top; for as gravels in general are a light, looſe ground, this cover will preſerve it from ſhoaling in the froſty ſeaſons; and before next harveſt it is a rarity if it is not hauled and pulled into the ground by the worm; or elſe devoured by the voracious nature of the gravel, which make potatoes, and all of the haulm tribe, to be ſo good dreſſing for

this ſoil.—It is ſtrange, at firſt ſight, to ſee great crops of wheat and other corn grow (ſeemingly) amongſt vaſt quantities of ſtones, that in this country are common to be ſeen, where hardly any mould can be diſcerned.

But this is accounted for by the owner very plainly, when he tells the queriſt, that he would not give one load of ſtones for ſeveral loads of dung, becauſe theſe ſtones have ſeveral advantageous properties in them: firſt, as they are of a cold, moiſt nature, they preſerve the roots of grain from being dried and ſcorched by the great heats: ſecondly, they help to keep in the *Sal terræ*, vapour of breath of the earth, which by their cover is obliged to perſpire more ſlowly; nor is it ſo readily exhauſted by the ſun's attraction, and therefore adminiſters its fertile quality more regularly and more abundantly to the vegetables that grow amongſt them, in that little mould there is, which the ſmall fibres of the roots will be ſure to ſearch for and find out, and join, although but in a very ſmall quantity, and that lodged amongſt the ſeveral crannies and cavities of the ſtones.

Ragſtone Gravel.

To define the nature of this ſort of earth is what my reader, I ſuppoſe, expects; and therefore I have to tell him, that this is a thin, ſhort, chalky

chalky ſurface, which commonly lies on a hurlock or ragſtone; that is to ſay, a whitiſh, hard ſubſtance, between a chalk and a ſtone, which is of a moſt hungry nature, readily receiving and conſuming the aſſiſtance of any manure, by letting the juices, or waſh, eaſily run into and through its many joints, and hollowiſh body. Of this ſoil, there are great numbers of acres in *Bedfordſhire*, *Buckinghamſhire*, *Hampſhire*, *Wiltſhire*, *Dorſetſhire*, and in other parts of *England*. Near me, there is a poor ſort of this *Sugar-Plum Land*, as they call it, lying in the open common fields under *Dunſtable Downs*, ſo poor, that the tenants are obliged to let great quantities of it lie two years together fallow or idle; in which ſpace of time, it throws up a little natural graſs, that ſerves as picking to their folding ſheep.

CHAP. III.

OF CHALK.

THIS ſoil, the dry, lean ſort eſpecially, being of a ſhort, crumbling nature, is eaſily got into a tilth, by reaſon on this ground weeds grow the leaſt of all others whatſoever; and therefore two ploughings in this ſort, will do as much ſervice as four will in red clays, which

makes the country-man ſay a fallow and a half is enough for a chalk; for here is not a conveniency for bouting and four thoroughs, &c. as in other lands, which obliges the ploughman to turn it each time of ploughing, if he can, the reverſe croſs way of the laſt operation, and generally into broad lands, which formerly was altogether the method, but latterly ſome ſow their wheat in ſtitches. And let what grain ſoever be ſowed in theſe chalks, it ought to be ſown in wettiſh weather, becauſe it is then made ſomething clotty and rough, which beſt hinders the growth of their only and moſt pernicious weed the poppy; and alſo by its binding quality cauſed by the wets, it is better faſtned, and will ſtand the froſts and colds much better: whereas a fine tilth in this ſoil is altogether to be rejected; for as the chalks are naturally light and looſe in themſelves, they are made ſo much the more ſo by being fine, and then the wheat and other grain will fall before the high winds, and ſometimes be almoſt ſpoiled.

The marly clay ſort indeed will give more room for the plough, becauſe it will admit of a greater depth; and the loamy chalks more room than the laſt. However, be it ploughed in broad lands or ſtitches, rolling is very neceſſary, eſpecially in the laſt, where it is uſed by being drawn long and croſs ways, in order to faſten

and

and keep the ground firm and cloſe to the roots of the grain; and alſo the better to preſerve them from the violent heats and droughts in ſummer, which broad lands particularly are more capable of doing than ſtitches, as they lie flatter, lower and more ſolid.

The worſt of theſe chalks that I call of the hurlucky or ſtony nature, will bear, when thorough dreſſed, good wheat, rye, barley, peas, thetches and lentils, but where this dreſſing is wanting, they commonly ſow for *Lent* grain. Lentils and thetches, theſe both will grow and flouriſh in the pooreſt chalks, as may annually be ſeen under *Dunſtable Downs*, where theſe two are often ſown amongſt oats, as bullimon, as being ſurer in their returns by far than peas,

BOOK II.

OF MANURES.

CHAPTER I.

OF THE SHEEP FOLD.

SECTION I.

Excellence of this manuring.

THIS dung is certainly the more rich, as it is made by a beaſt that can and generally does ſubſiſt without the help of water all the year; for which reaſon, their dung is more than ordinary impregnated with thoſe vegetable ſalts that are contained in the graſs, hay, ſtraw, and corn that they alternately feed on: it is this ſaline excrement that is an enemy to all worms, ſlugs, grubs, flies, and caterpillars, as we find to our great profit, by folding before and after the ſowing of turnip, wheat, barley, and other ſeeds; and when fed on hay or ſtraw in yards in the winter, theſe creatures are of prodigious ſervice in converting ſtover to one of the beſt

of

of dungs; which have partly occaſioned many of our farmers this great ſtraw year, to buy in wethers to eat it and make dung inſtead of cows, that ſold as dear as ſheep were cheap.

The ſtale likewiſe of this beaſt is of courſe hotter and ſalter than ſome others, by ſo much as it is leſs uſed to ſupply its drought by drinking; and therefore it is of a more fertile quality to the ground, which cauſes the diligent ſhepherd every morning to drive the ſheep briſkly about the fold, that they may be provoked to dung and ſtale, before they are let out.

The dung and ſtale of ſheep are moſt efficacious on all manner of loams, but more on gravels, chalks and ſands; becauſe theſe grounds being of a light, hollow nature (eſpecially the two laſt) are by the help of the fold, brought under a cloſer union in their parts, than they otherwiſe would be, by any other method that is now in uſe, whereby this dreſſing is made to mix with, and ſtick to this looſe, ſhort earth in ſuch a tenacious manner, as enables it much better to yield its ſoil to the corn.

As to the dreſſing of land by ſheep; while they are penning and dunging it, they do at the ſame time rather prevent the breed of worms, than increaſe it; for no reptile can agree with the urine of any beaſt: and this I take to be one of the ſtrongeſt ſorts, as being ſomewhat of the nature of their ſtrong-ſcented wool.

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Secondly, As ſheep are their own porters, they carry their dung and urine to diſtant fields, free of any other charge than a ſhepherd and his dog, where they have their grazing on commons and in fallow-grounds.

Thirdly, The dreſſing of ſheep may be made uſe of as an alternate one, and thereby gives the ground a natural and refreſhing aſſiſtance; eſpecially, when it ſucceeds the manure of cart-dung.

Fourthly, The penning of ſheep gives many farmers a moſt valuable opportunity to get the beſt of crops of wheat, barley, and other grains, and turnips, and graſſes, by the dung and urine of them; for it is a preſent practice both in *Vale* and *Chilterne* grounds, to fold wheat and barley, after the ſeed is ſown; eſpecially on that wheat-ſeed which is ſown on a lay of clover, or natural graſs, when only one ploughing (as the uſual way is) is given it, and the ſeed harrowed in; then it is that theſe moſt ſerviceable creatures, by penning them on it, not only dreſs and enrich the ground, but tread in the ſeed, and ſo faſten it, that neither winds nor rains can blow nor beat down its ſtalks, nor blow nor waſh away the mould from off the roots: whereas, without ſuch their treading in the ſeed, as it lies in this looſe ſhallow ſituation, the wheat would be apt to grow up and ſtand ſo weak, and

and be thereby ſo much under the power of great winds and rains, that it is rarely known to eſcape falling down in its green ear; and then it generally returns the farmer not above half a full crop of this golden pay-rent grain: but whether ſuch penning of ſheep be applied to wheat-ſeed ſown on lays of graſs, or on wheat-ſeed juſt ſown on tilth broad lands, it has the ſame effect.

So likewiſe, where this excellent piece of huſbandry is practiſed on barley-crops, it anſwers the ſame profitable ends. Therefore, it is now a common practice, both in *Vale* and *Chilterne* countries, where a farmer can conveniently do it, for him to pen or fold his ſheep, on his new-ſown barley-ſeed. In this laſt ſpring-ſeaſon of 1745, I folded my ſheep on part of a barley-field; and the other part of the ſame field I ſooted, by ſowing over it about twenty buſhels of *London* ſoot on each acre: and though a rainy ſummer attended the crop, I believe I may ſay, that ſo far as the fold was ſet, the barley was near as good again as where it was ſooted.

SECT. II.

Seaſon of folding.

IF we dreſs our barley-crop with the fold, it muſt be done only in a dry time, for, if the fold was to be employed in wet weather, it

would do more harm than good, by the ſheep's treading in the ground ſo hard on the barley, as to prevent a great deal of it ever coming out: but if the fold is ſet on the barley, directly after it is ſown, and the folding or penning is carried on in dry weather, it is the beſt of dreſſing, for chalky, ſandy, gravelly, and dry loamy earths; becauſe the ſtale and dung of the ſheep will add ſuch a fertility to the barley-crop, as to make it become a very good one, indeed, for I never knew this piece of huſbandry fail its owners, when carried on in a right manner; and this may be done for ſome time, in one and the ſame field, even till the barley is three or four inches high; and, though the ſheep may eat and trample ſome down, yet their dung and ſtale will ſo revive it as to force it on into a moſt quick growth.

To dreſs always with the fold, I abſolutely deny to be right huſbandry; and I do affirm for truth, that whoever folds one piece of ground every year, and many years together, for getting a full crop of grain every time on it, will find themſelves miſtaken in their hopes: nay, I will carry the matter further, and proceed to prove, that if a perſon folds ſuch ground only once in three years, and continues this cuſtom many years, he will alſo find himſelf in the wrong of it; which I thus make out.

The

The dung and ſtale of ſheep is known, to all that make uſe of them, to be a moſt thin dreſſing of the ground; for although the dung and ſtale of ſheep adminiſters a nutriment to the earth, yet it does not do it in ſuch a plentiful degree, as to laſt above one year to a good purpoſe; and therefore it is we look on the wheat-crop to be improved by it.

But the next year's lent-crop has but little ſhare in its fertility, becauſe we reckon its virtue laſts but one year; for, at beſt, the dung and ſtale of ſheep, that eat nothing but graſs, is allowed to be but a cold dreſſing to the ground; and that ſoot, which is the thinneſt of manures, exceeds it in reſpect of duration; for that this black dreſſing is endowed with ſuch ſulphureous and nitrous qualities, as to aſſiſt the land it is laid on two years together. However, ſure I am, that neither the fold, nor ſoot, nor lime, nor aſhes, nor oil-cake powder, nor malt-duſt, will anſwer a farmer's intereſt, if he always dreſſes his land with any one of them.

SECT. III.

Folding Meadows.

OTHERS, again, will fold on their meadow-ground for improving it to a great degree, as a late gentleman uſed to do in the

pariſh of *Studham* in *Hertfordſhire*; who, as ſoon as he had done folding on his wheat-land, about *Allhollantide*, removed his fold to the meadow, and there began folding on the ſame; for here it does great ſervice, becauſe now neither the ſun nor air can dry up the dung, nor exhauſt its virtue; and it is now that ſheep kill the preſent moſs, and hinder the breed of more by their tread, by the warmth of their bodies, and by their dung and ſtale, which is readily received by the earth, as it is now in a ſoft condition; and which will be of more ſervice, if ſome ſtraw is laid every night on the ground where the ſheep are to lie, and hay or ſtraw given them in a rack. But, to do this in the moſt efficacious manner, ſome of the niceſt farmers fold two nights together, on one and the ſame piece of ground; and then it will ſurely anſwer their end, and not hurt the ſheep, provided they are not folded in too wet weather; and this is one reaſon why they lay ſome ſtraw at the bottom of the fold, becauſe it defends their bodies from the bare ground, which, in winter, is very apt to draw the heat out of the ſheeps bodies, and lodge a prejudicial coldneſs in its room. When folding is hired, the common price is three-pence a ſcore for ſheep each night.

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SECT. IV.

Folding in the Farm Yard.

A Covered fold is a very great enricher both of graſs and arable land, by folding on the ſame all the winter with wether ſheep, firſt ſtrewing every night a little ſtraw over the ground to keep it from too violently drawing the bodies of the ſheep, and will alſo occaſion their making more dung when very great rains happened, or when ſnows fall, and even then, he ſhould not loſe the benefit of the ſheeps dung and ſtale, but in this caſe confine them in a ſtraw-yard, and feed them there with pea, barley, or oat-ſtraw, out of a rack (this was the practice of a farmer) ſo that he made it his particular care to enjoy the benefit of this excellent dung all the winter in one place or other, and indeed I may ſay, all the year *.

CHAP. II.

Of FARM YARD DUNG.

I Know only one farmer beſides myſelf, even in the pariſh where I live, but what expoſes both their long and ſhort dung to the waſh of

* The Author has much other matter concerning folding, but only relative to the welfare and conduct of the flock, not the good of the land, it does not therefore come properly in here. EDITOR.

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rains, by throwing it out of the ſtable into the farm-yard, and laying it all over the ſame in a thin condition; which conſequently gives the deſcending waters an opportunity of waſhing away the corn, and beſt part of their dung; and this the more, as the weight of horſes, cows, ſheep, and hogs bodies compreſs and ſqueeze out the goodneſs or quinteſſence of ſuch dung, and leaves behind little more than the huſky, ſpungy ſtraw-part of it for the farmer's uſe. Here is huſbandry with a witneſs! I mean ill huſbandry; for ſo it is in the higheſt degree, as I am going further to make appear, by aſſerting it to be too general a practice with ſome ſilly farmers, not only to ſuffer their dung to be laid in the farm-yard, and have its goodneſs waſhed out, but alſo to ſuffer this liquid goodneſs to run away into a common road or drain, ſo as never to be enjoyed by him; and this during the whole year.

A damage, I believe I may ſay, committed on himſelf in an infinite degree; for where a great farmer loſes his dung in this manner, who can tell where the loſs may end, as dung affects his land, not only in the next crop, but alſo in many afterwards? for as the produce of the firſt wheat-crop is, ſo is the ſecond *Lent* crop better or worſe; and ſo on, as theſe return more or leſs corn and ſtraw, and them dungs. So their rich

ſwine-

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ſwine-dungs are commonly little better huſbanded, becauſe theſe lie in their hog-yard likewiſe expoſed to the waſh of rains, to a great loſs; and the more ſo, where many of them are kept, and their dung is made by the food of peaſe or beans, which contain more of the ſaline or ſulphureous qualities than any other of their meat beſides. According to what I have obſerved in ſeveral large farm-yards, I think I may ſay, thoſe tenants have loſt near a fourth part of the goodneſs of their dungs, before they have been laid on their fallow-grounds.

I remember the ſight of a piece of ill huſbandry I met with on this account, in *Ayleſbury* vale, where, though the farmer rented a hundred and fifty pounds a year, yet his hogs I ſaw feeding in an open hog-yard up to their bellies in a ſtanding black water, and this in the winter, during all the time they were fatting; ſo that they could never eat their meat without coming out of their ſtye into this water, that run into an adjacent great pond, and from thence, when it overflowed, into another large pond at a conſiderable diſtance, and there was partly loſt. His fowl-dung was alſo huſbanded in as bad a manner; for, though he kept the beſt part of a hundred cocks, hens, and chickens, yet he ſuffered as many as would, to rooſt on trees, and elſewhere, to the loſs of their dung, which kept

this farmer poor; but, as poor as he always was, he was careful to lay out ſome of his money in ſoot and pigeons-dung for manuring his ground; and, in doing this, he did well, but neglected his care at the fountain-head, for here he ought to have employed it firſt; that is, in ſaving his dungs in the beſt manner, as I am going to ſhew.

As ſoon as horſes are taken into the houſe, the farmer ought to begin ſaving their dung in particular, after this manner: ſuppoſing him to have conveniencies accordingly, he may keep his ſhort horſe-dung by itſelf, and the long by itſelf, or both together under cover. My ſhort horſe-dung I lay in a place by itſelf under the rooſting of cocks and hens, whoſe dung ſtrengthens that of the horſes, and the horſes that, by preſerving the virtue of the fowl-dung from being exhauſted by the air; and to improve both, I oblige my maid-ſervant to empty the chamber-pot every morning over theſe dungs, which helps to rot them the ſooner, and impregnate them with ſuch a fertile quality, as renders them a moſt rich compoſt for manuring land.

And, when it is rotted enough, ſome ſow it by the hand out of a ſeed-cott; others lay it in little heaps, and ſpread it before or after corn is ſown, with a three-tine fork. As for the long dung, it muſt have a longer time to rot; but, when both ſhort and long dung is mixt

and

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and lain together, the ſhort helps to rot the long dung much ſooner. And if cow and ſwine-dung were thus incorporated together with horſe-dung, and kept under cover, they would be *cent. per cent.* the better for it, in compariſon of their lying all abroad expoſed to the weather.

But, in caſe there are not conveniences for laying ſuch dung under cover, then, as the dungs are made, they ſhould be lain in one great heap or dunghill, which next to cover will preſerve their good properties in a great meaſure from the power of rains and droughts; and, as the black water drains from it, it ought to be carefully preſerved, by cauſing it to run into ſuch a receptacle or reſervoir, as will give the farmer an opportunity to carry it out in a tub or barrel, for throwing it over the dunghill, or to ſcatter it over plowed or graſs-land, over wheat, beans, peaſe, or oats, in their infant growth; or to water cabbage-plants, or other culinary roots.

For, if ſtable or other dungs were laid thinly over the farm-yard, the rains would eaſily waſh through them, and the ſun dry them, and that much more than when ſuch dungs are laid in a thick ſubſtance. But, before I quit this ſubject, I muſt obſerve, that I have ſeen a great farmer lay his ſtable-dung under a granary built high from the ground on purpoſe to be a ſhelter or cover for ſomething. Here I ſhould think it

improper to lay dung, becauſe the ſteam of dung is moſt apt to breed a mould, that is pernicious to every thing it ſettles, or gets to. When fowls-dung is kept by itſelf, as often as we have duſt, offal chaff, or other trumpery, fanned out of the corn, we mix them with ſuch fowls-dung, which, in time, will lie, heat, rot, and become an excellent manure, to be ſown as I ſaid, out of the hand ſeed-cott, and harrowed in with your barley, or otherwiſe applied.

Where horſes are confined in no greater room than a large yard, one load of ſtraw will nearly make ten loads of dung.

CHAP. III.

OF URINE.

THIS is allowed to be one of the beſt dreſſings for moſt vegetables, if made uſe of at a right time, and in a right quantity. A farmer found it ſo, when he uſed it ſo late as in *March* on his wheat, which he ſprinkled out of a garden watering-pot, over his wheat, as it grew in two-bout ſtitches; and for this, and other purpoſes, he ſaved it in a barrel which he uſed to carry into the field in a cart, and there drew it out into his tin watering-pot. But another farmer had a better contrivance; he kept his cham-

chamber-lie in a great oil jar, that is to be bought at the oil-ſhops in *London*, for about four ſhillings a-piece; when it was full, he put the urine into a barrel in a cart, and, in *January*, *February*, *March*, *April*, or *May*, would let it out into a wooden long trough, bored full of little holes, that lay acroſs the tail of the cart, by which the urine would run gradually out over a great deal of wheat in a little time; and it was obſerved, that this farmer had the beſt wheat in the country on his chalky loams, near *Tring* in *Hertfordſhire*.

Another trial was made by a groom who, by way of curioſity, had a mind to try the effect of horſe-ſtale, and therefore ſprinkled it over ſome wheat but once, that grew in two-bout ſtitches near *Nettleden*, which cauſed it to come on ſo rank that they were forced to cut it down ſeveral times, and at laſt it run ſo much into ſtraw, that there was hardly any corn.

Another trial was made with chamberlie, by a gentleman who ſtrewed it over the roots of a wall-fruit tree to make it prolific, but inſtead of that it killed it; however, part of the next tree's extreme roots having received ſome of it, it cauſed it to flouriſh in a furious manner, and bear more fruit than ever it did before. Another proof of the good effect of this was annually experienced by a gardener, who, having but a little ſpot of ground, enjoyed the greateſt crops

of

of kitchen-greens in all the country about him, by the help of urine, which was his only dreſſing; and which he every year ſaved and ſprinkled over all his land, and it cauſed his onions in particular, to come early, and grow into very large roots.

As it is endowed with a burning ſpirit, it calls for a careful management on all ſorts of graſs, corn, or trees roots, that it furiouſly aſſiſts or deſtroys, as it is diſcreetly or indiſcreetly applied; its right uſe being not only in a ſmall quantity, but at a proper ſeaſon: in the firſt, it ſhould be no more than ſprinkled or poured on in ſmall ſtreams, out of a watering or other pot or diſh: in the latter, it is to be done in *January*, *February*, or before *May* is over, that the drying heat of the weather may not add to the fiery part of the ſtale. I have thought human ſtale of that importance in promoting the growth of corn, graſs, and trees, that I have and do allow my maid-ſervant threepence for every kilderkin ſhe ſaves by emptying the chamber-pots into a caſk, which when full, I put into a cart, and let it run out on my corn or graſs, as it is drawing over them, by pulling out the cork at each end of the veſſel. Likewiſe when I empty my neceſſary houſe, the man mixes ſtraw with it in each barrow, and puts it on a heap to lie in the weather and rot, till it becomes fit to put on my land,

land, where when it is ploughed in, either at *Michaelmas* for wheat or rye, or in the ſpring for barley, it is of a very great and laſting ſervice.

CHAP. IV.

OF COMPOSTS.

IF you have an opportunity before harveſt begins, cut or dig, fork or ſhovel up graſs-turf, that grows near hedges, or elſewhere; or where you have ſtocked up any brow of underwood: I ſay, mix ſuch turf with lime, and it will burn up all graſs, ſedge, and ſmall roots, and weeds, and thus reduce all tough, ſour turf, and clotty earth, into a fineneſs and ſweetneſs, againſt wheat ſeaſon in *October* next, provided you can give the heap one or two turnings in that time. In the ſame manner all ſullidge, and mud of highways, ponds, and ditches, ſhould be ſerved, either by mixing it with lime, or ſmall chalk alone, or with lime and dung together; or with marle, maum, ore or ſea-weed, fern, nettles, ſea-ſand, or other proper ingredients, to make a fertile compoſt.

This I have to ſay, in praiſe of ſome of the *Middleſex* farmers, about *Harrow*, *Stanmore*, and the adjacent parts, who make it their buſineſs to get a great deal of ſullidge out of the bottoms of

drains in roads, commons, and other places, which they here call a *mine*; for, with this ſort and the emptyings of ponds and ditches, they mix *London* dung, *London* dirt, and ſmall chalk, which ſome fetch, above five miles an end, from *Watford*; which after two or three turnings with ſome coal-aſhes among it, becomes an excellent compoſt for graſs or meadow ground, as well as ploughed land. The benefits of this huſbandry are too many to be enumerated here, and, therefore, I ſhall only hint that, if ground is got into good heart, by being thus well dreſſed with a ſweet, ſtrong, and fine compoſt, the leſs and eaſier plowings will better anſwer the farmer's end, than more, and harder, without ſuch improved compoſt-dreſſing; becauſe it makes the earth plow and harrow much eaſier, and finer, than otherwiſe it would.

If the dryneſs of the weather will permit, empty your ponds and ditches in *June*, in order to give the moſt room for the reception of waters, and, at the ſame time, to enjoy a beneficial compoſt, which the mud, that is thrown out, will help to do, if rightly managed: for this purpoſe, let it lie to dry; when this is done, lay ſome ſmall chalk cloſe to it, and let it be mixed together into one ſquare heap. Others will mix lime inſtead of chalk, which will burn up the ſeeds of weeds, take off the crude nature of the mud,

and,

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and, much ſooner than chalk, reduce its tough body to a ſhort conſiſtence.

Or you may mix the ſhovelings of dirt, or turf, or, if you are near enough the ſea-ſhore, ore-weed, or ſand of any kind, together. All, or part of theſe, as conveniency allows, may be mixed, and, in two or three months time, turned and mixed again, and ſo a third time, if occaſion be, that all their ſeveral parts may be well incorporated. And, if ſuch a heap can be got ready time enough to lay on juſt before the laſt ploughing for wheat, you may depend on it to be one of the beſt of dreſſings for almoſt any ſoil, and will produce you a plentiful crop, free and clear of ſmut, if other management is anſwerable to this excellent compoſt.

Small chalk, or turf, or mould got from under hedges, or the ſullage of bottoms in the roadway, or *London* aſhes, or *London* dirt from off the layſtalls, are what the *Middleſex* farmer chiefly makes uſe of for his meadow and ploughed lands; and, to give them their due in this reſpect, I muſt ſay they are the beſt of huſbandmen, becauſe many of them fetch their chalk, and *London* dirt and aſhes, five or ten miles, and ſo work and mix their heaps by ſeveral turnings, as to make them almoſt fine enough to paſs through a ſieve or ſcreen, before they lay it on.

The ſame character I muſt alſo give the

Kentiſh

Kentiſh and *Eſſex* farmers, who get all the turf, mould and mud, wherever they can, for mixing it with dung and chalk, or lime, in the greateſt perfection. As to the quantity of one with another, there needs no computation from my pen, for every peaſant is a ſufficient judge of this, becauſe there is hardly any danger of a miſtake. I have a great hole in one of my fields, which contains, I believe, twenty loads of ſandy mud, that it receives from the ſhoot of a hill once a year: this I have thrown out, and, when dry, I bring to it ten or twelve loads of chalk, and as much dung; or, if I put twenty of each of the two laſt, I do not know where the harm would be, as it is to be laid on a loamy gravel, for a crop of wheat or barley; for this ſoil, though ſhort in its nature, yet, on the fall of great rains, when its in a fine tilth, will run together, like batter for a pancake; and when it thus happens preſently after the ſeeds of wheat and barley are ſown, it will bind them in ſo tight, that many of them can never ſhoot out; therefore chalk and other looſe dreſſings are neceſſary here.

Mix mould with dung and lime; the latter will make the grazy or rooty mould run into ſmall parts, and ſo foment them all, as to make them incorporate in a fine manner, and become fit to be laid on land, and ploughed in, in the month of

of *July*, for turnips or rye, or for wheat afterwards. Or if mud is ſo ſerved, inſtead of mould, it will anſwer to a good purpoſe, and their proportion ſhould be three parts mould or mud, and one part lime, or about ten loads of mould or mud, to two loads or ninety-ſix buſhels of lime, to be laid length-ways, in a long, narrow heap, broad at bottom and narrow at top, ſomewhat like a hog's body, for the rain to waſh the better off it.

This compoſition makes a moſt excellent manure for nouriſhing both corn and graſſes; and therefore is very proper to be uſed on both ploughed and meadow-lands; and this advantageous practice is now become ſo much in eſteem by the beſt of farmers, that, in order to come by this delicate dreſſing, they often dig up their mould, and carry it away for this purpoſe, from the very roots of their hedge-plants; and, to do this to the beſt advantage, ſome will firſt lay a quantity of mould or mud all along the bottom, then a layer of lime and dung, and mould at top; others will lay ſome mould firſt at bottom, and then a long row of ſtone-lime, and on both ſides of it, mould and dung mixed, which is all, ſome time after, to be mixed with a ſpade or ſhovel, till it is incorporated into one fine body, and then it will fertilize almoſt all ſorts of land, as being an agreeable manure, which will rather

deſtroy

deſtroy than breed weeds: but of lime and theſe, more hereafter.

By mixing your dung, mould, and lime together, you will bring all the compoſt into a fermentation, which, by the help of the dung and lime, will burn up all the ſeeds of weeds, and the ſmall roots that may be contained in the mould; the whole made to run into a fine body. If you are to mix lime with only pond, river, or ditch mud, then put one load, or five or ſix quarters of lime, to ten large loads of mud; obſerve alſo, that this muſt be once turned at leaſt before you lay it on for wheat, that all may be duly incorporated and made fine. There are ſome farmers who uſe lime in a dunghill, thus: firſt they lay a bottom of horſe, cow, aſs, or hog dung, of two feet thick, upon which they ſpread a covering of earth two feet thick likewiſe; on this they lay what lime they think fit, then dung, then earth, and then lime as before, and ſo on, till they have their quantity, and at laſt cover with turf or mould, to keep the ſun from drying it too much, letting ſuch a heap lie rather broad than high, that they may the better ferment together; and this they never fail to turn once at leaſt. Lime is ſo great a ſhortener of mould, that, if it is thrown but thinly on ploughed land, in ridges eſpecially, in *September*, *October*, or other winter months, it will waſh into,

into, and fine it, with the help of froſts. Lime alone is uſed for *French* wheat, as well as common wheat, and is alſo excellent for meadow-ground, turnips, peaſe, &c. as being a cool, ſweet, rich dreſſing, and helps the corn to kern, hollows the ground, ſweetens the bite of graſs, and in many places is made to ſupply dungs and other dreſſings; but more of this in proper months.

CHAP. V.

OF CHALK.

CHALK is a mineral that is of moſt exquiſite ſervice in farming, as being the greateſt alterative of any other to our clays, loams and gravels: without this great improver, the many fine crops of corn and artificial graſſes could not be obtained that are, becauſe it cures the clays of their ſour, auſtere, cold, hard and tough qualities, and eſtabliſhes for ſometimes twelve, or twenty years together a lightneſs, warmneſs, ſweetneſs and ſhortneſs in their room; and ſo alſo in the loams and gravels, this earth does wonders by converting their ſour and binding natures into their contrary qualities, whereby the plough performs its operations more eaſily, and the ground becomes more fertile, by cauſing theſe

earths to emit their ſalts to their ſeveral vegetables with freedom, which otherways would be tenaciouſly fixed and kept from nouriſhing the corn and graſs, that would then want their vital aſſiſtance; ſo that it evidently appears, that thoſe who chalk moſt, receive the greateſt crops: but in the vale they ſtand not in ſo much need of this moſt kind earth, becauſe their black and bluiſh marly-clays are naturally ſhort in themſelves, and readily yield to the power of the air and rain: whereas our red clays in the chiltern are quite different to thoſe of the vale, and require the help of chalk or ſand to reduce their ſurly bodies, as they will not be prolific in their productions.

Where the chalk may be moſt commodiouſly drawn, is generally in the middle of a ploughed field: this is according to the late and preſent practice, by the moſt judicious of our farmers, and for ſo doing they aſſign this reaſon; becauſe when the chalk is drawn, a great hole or pit is evidently cauſed, and by being in the center of the field, the plough, by traverſing the ground on all ſides, in time will bring down and drive the adjacent earth into it, and ſo by degrees will fill it up in ſuch a manner as to make the place little or nothing the worſe for either ſowing or ploughing. In many places theſe holes or pits are made in an angle, or on a graſs baulk of

the

the field, and then there is never any chance of filling them up, otherways than by the great trouble and charge of bringing other ground and caſting it into them, as it is likely to be my caſe in a field that I bought amongſt ſome others about five years ago, where I found a large, deep pit made cloſe to a hedge, which had once like to have occaſioned me the loſs of a horſe.

But where a wood or ſpring adjoins to the field, or near it, then this ſituation may be moſt proper for the ſinking a pit; or if it is made cloſe to the wood, it will have this conveniency, that it will be eaſier fenced againſt cattles falling into; and trees or other wood will nevertheleſs get up in a little time, ſpontaneouſly from the fibres of the adjacent roots, and then grow up and run faſter than ordinary in this hollow cavity of ground, as is often ſeen in large trees that grow in dells and holes of the earth, where the ſhade and water have more power in the nouriſhment of all vegetables than on plain ground.

Sometimes I have known the men make more than one pit in a field, to find in a ſecond better chalk than they did in the firſt, where it preſented it ſelf good for a little way, till a vein or cruſt of the hurlucky, ſtony ſort prevented any further penetration, which cauſed the ſecond attempt at ſome diſtance, and anſwered the own-

er's ſatisfaction; for here appeared a fat, ſoft chalk, with a yellow coat or covering, and this is a certain indication of its goodneſs; where out of this pit, two adjoining fields were chalked juſt by my houſe.

The chalk drawer finds a wheel rope-barrow, and all other tackle, and alſo ſinks the pit for the price of eight pence a load, each load containing twenty wheel-barrows full, which they alſo for that money ſpread all about the field. Twenty five or thirty load will well chalk an acre of ground, which by diſcreet ploughings will laſt twenty years. But here I muſt ſtop my pen to expoſe the inconſiderateneſs and folly of all thoſe who by thinking to ſave charge, oblige the chalk drawers to put on ſix acres of ground, no more chalk than would thoroughly dreſs one: this in proportion I have known done, where it could be afforded to full dreſs. This defective management cauſes many fatal miſtakes, for when ground is ſo chalked, the plougher and ſower are apt to order their matters as if the land was full dreſſed, which often deceives the owner; for to croſs-crop this ground, or ſow this ground as if it had its due quantity of chalk, is wrong, and will force it to complain in a little time of ſuch hard uſage. This work muſt be ſure to be done about *Michaelmas* or a month after, that the

froſts

froſts may ſhatter and crumble the chalk all the winter as it lies on the ſurface of the earth; otherwiſe if drawn in ſummer it will grow hard and petrify by the ſun's great heat and the dryneſs of the air; or if ploughed into the earth in lumps, it will ſo remain many years: as a farmer at *North Church* near me did, who, by miſtake, drawed his chalk in the ſpring, and ploughed it into the ground in lumps, that ſtill remains ſo, though it is ſeveral years ſince he had it dug.

This chalk when thoroughly reduced into a powder by the winter froſt, is called the beſt of dreſſings; not as it is rich in itſelf, but as it ſweetens, ſhortens and dries the clay's body, and ſo makes it fit to receive, and eaſier join and mix itſelf with other manures, that may be thrown upon or ploughed into it; whereby it becomes a looſe earth, and lets the waters in the winter and cold ſprings through its pores, which before uſed to hold them, and thereby chilled and ſtarved the corn. When therefore this chalk is ſo reduced by the weather, at *Candlemas* plough it with or without a fin on the ſhare, very thin into the ground, and by this one ploughing may be ſown beans, either ſtrained into the thoroughs and afterwards harrowed down, or elſe by ſowing the beans all over the field firſt, and then plough them in very ſhallow, or to ſow them

half under and half over, thorough and harrow well; and ſo after this manner may peas be ſown.

One of our beſt farmers this laſt ſpring, eat off his turnips early, and chalked his ground well; then the beginning of *March* he gave it one ploughing in broad lands, and harrowed in his barley and ſooted it on the top. This is an excellent way to loſe no time, and hereby the grain has no leſs than three dreſſings. If ſands are to be laid on this red clay, then twenty or thirty cart loads on an acre can't be too much for this purpoſe, to ſhorten ſo tough an earth as ſome of the ſtrongeſt ſort is.

But to ſpoil a ſerviceable level ſurface, by digging into it and making and leaving pits open, may be of very ill conſequence; and, to prevent miſchief from open pits, the new invention took its riſe of digging only a round hole of three feet diameter, enough for a tub to be let down, and drawn up with chalk, for chalking our *Hertfordſhire* ploughed fields; and this hole we now commonly make in a hedge, on purpoſe that it may be the more out of the cattle's way, to prevent any danger of their falling into it. Whereas, heretofore, we uſed to make and leave large pits, perhaps, fifteen, twenty, or more feet wide to come at our chalk, and this in the middle, or ſome other open part of a field, which has occaſioned many misfortunes.

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CHAP. VI.

OF MARLE.

THERE are four ſeveral ſorts of marle, *viz.* the fuſtian, the cowſhit, the black ſteel, and the ſhale: the fuſtian ſort is an earth compoſed of a fat loam and ſand of a reddiſh colour ſo ſoft and looſe that they ſpit it with a ſpade, and laſts but four or five years, though relieved with other dreſſings in that time: the cowſhit, which is the richeſt ſort, looks to be an earth mingled with lime leaving many little white ſpecks in it, and will laſt ſeven years with aſſiſtance; this is all ſpitted or thrown out with a ſpade: the black ſteel marle is of ſo hard a nature, that they dig it with mattock and ſpade, and will not all diſſolve in ſeven years, nor will all its goodneſs be ſpent in twelve: the ſhale marle is of all colours and of a ſtony nature, which obliges them to peck and hew it, and then it comes like bits of ſtone; yet this will laſt but four or five years though helped with other dreſſings: of theſe they ſometimes lay above 500 heaps on an acre; and after it is ſpread they let it lie diſſolving the remaining part of the ſummer and the whole winter till they give it one ploughing between *Michaelmas* and *Candlemas*, and afterwards harrow in oats,

A gentleman dreſſed a three-acres piece of light gravelly ſandy ground with three hundred load of marle, but two years ago; and ſince that dunged it well all over. This double dreſſing muſt ſurely be one of the higheſt improvements of ſuch ground, for nothing agrees better with a gravelly ſand than marle, becauſe its ſhort dry parts are toughened by the marle, and brought into a much moiſter condition than it was in before. Now theſe two qualities being contrary to the nature of gravel and ſand, this mixture reduces it into a loamy body, and thereby enables it to make a longer lodgment of all dungs and manures that ſhall be incorporated with it; for while this ſoil remained in its original, hungry, ſhort, looſe condition, dungs and manures were ſoon eat up by it or ſoon waſhed away, becauſe the particles of gravel and ſand are generally of a globular make, and therefore cannot lie ſo cloſe together as thoſe of loams do. Hence it is, that marles, or rich clays, are as natural a mixture with ſand, as ſand is with clay; becauſe theſe bring their oppoſite ſoil into a medium earth; an earth that may be juſtly called a loam, and a loam the beſt of earths, as being the moſt general ſort of all others, for nouriſhing almoſt any vegetable. On this account, thoſe gentlemen who are poſſeſſed of marle-pits have juſt reaſon to think themſelves happy, which ſeveral counties

ties in *England* are ſtrangers to. I do not know of one pit of this rich earth in *Hertfordſhire*. But, in my late travels, I have ſeen ſeveral of different colours, and all of them of a moſt fertilizing nature. To ſupply which defect, we are obliged to be at the great expence of buying and fetching at many miles diſtance, ſheeps trotters, cows and oxens hoofs, hogs and cows hair, oil-cake powder, malt duſt, lime, ſoot, aſhes, rags, pigeons, hens, and rabbits dung, &c. And thus we are forced to lay out, in advance, the value of an ordinary crop of grain, in hopes of obtaining a very profitable one. Though ſometimes we miſs of our aim, and fall ſhort of our expectation in this matter; for when a dry hot ſummer happens, our grain on gravels, chalks, and ſands, commonly fare the worſe for ſome of them; for, by their hot nature, they help to impede, rather than forward, the growth of the crop.

CHAP. VII.

OF LIME.

LIME, in different places, is attended with different management. In *Surry*, they lay one buſhel on a heap taken out of a low cart, and this at every pole-diſtance throughout a field; and, when ſlaked by the weather, with

a ſhovel, they throw it over the land, plough it in, and then directly harrow in their wheat-ſeed on the ſame. Or, when the ground is ploughed and harrowed, the laſt time but one, the lime may be ſown and ploughed in with wheat-ſeed in two-bout lands: or, when the lime is ſown in a little quantity, as that of ſixty buſhels on one acre, when it is ſlaked, the lime and ſeed may be ploughed in together in broad-lands, and it will nouriſh two crops well.

But, in ſome parts of this country, they lay on a whole kiln of lime on three acres, containing nine loads, and each load forty buſhels; which, with ſome alternate dreſſings of dung, or other ſorts, will laſt ten years; for this ſort of manure greatly hollows the ground, cauſes wheat to kern, ſweetens the land, and kills weeds and inſects.

On the fourth day of *Auguſt*, 1738, I ſaw a large field juſt ploughed up and rolled in *Surry*; and then half a buſhel of lime was laid, at every pole-diſtance, in rows throughout the ſame, for ſowing wheat. Some let lime lie, till it is ſlaked, before they throw it about with a ſpade or ſhovel.

In ſome parts of *Eſſex*, as well as in *Surry*, *Kent*, and many other places, they give two or three ploughings to an oat-ſtubble, and then lay one buſhel of lime on every rod of ground, where, after a very few days, it commonly ſlakes; then

then they plough ſhallow, and harrow in wheat in broad-lands; and thus they ſay, that, with a little other dreſſings afterwards, lime mends lands for ſeven years. In ſome parts of *Surry*, when they lay a buſhel of lime in a heap in the field, it is their way to throw a little mould over it, that it may the more gradually and leiſurely ſlaken, and by this means, it will ſwell to a great degree; then they ſpread it over the land with a ſhovel, and plough and ſow rye, wheat, or other grain.

If lime is made uſe of as dreſſing for wheat, it muſt be ſlaked, and then immediately ſown hot on the laſt ploughing, all over the ground, about 25 or 30 buſhels on an acre; this ſhould lie 6, or 10 days, and then plough and ſow the wheat in ſtitches as at other times, which will ſecure it againſt cold, wet weather in winter and ſpring, and make it look of a deep, dark green, when the neighbours will die and look yellow by the chill of froſts, cold and wet,

Lime muſt lie, and as ſoon as ſlaked, ſown over the ground, to the quantity of twenty, thirty, or forty buſhels on an acre; immediately after this, the turnip ſeed muſt be ſown, and both harrowed in together.

CHAP. VIII.

OF BURNT CLAY.

MOLE, or Ant-hills, conſiſting of a reddiſh, clayey nature, with ſome mixture of loam, that had been cut up with the iron-plated ſhovel, or ſpade, and carried to one great heap, where they lay till *May*, or *June*, and then were burnt all in one heap into aſhes, thus: firſt, the farmer begun to lay a little faggot-wood for a foundation, and on moſt of that he laid on ſome intire loam or turf, and on that, ſome of the ant-hill earth; then he began to light his fire, and, as it burnt, he put on more, till he increaſed the heap to a very great bulk, which to do in the beſt manner, the fire-man continued laying on the ant-hill earth, ſo carefully, as to keep in the fire very cloſe, for, if it had burſted out, it would have done but little ſervice.

Thus, when all was burnt and calcined into aſhes, he laid them on his meadow-ground, but they did not anſwer his expectation; becauſe a great deal of this reddiſh clayey earth remained, after firing, in the hard body of many pieces, almoſt like bits of brickbats, which he was obliged afterwards to collect and carry off, as being too hard a ſubſtance for the weather to diſſolve: this proves, that burning clay in a heap, in the open field, is not ſo good a way as burning it in a clamp;

clamp; and therefore a late author, in his treatiſe of improving clay-grounds, is certainly abſolutely right, in his publication of a method how to burn wet clay in the greateſt perfection in a clamp; becauſe, by this method, clay is brought to yield more ſalts, than when burnt dry, and alſo burnt into a perfect aſh, or powder.

Now why the clay ant-hills were burnt to aſhes, and not ſerved as thoſe in the vale were, I think wants no explanation; and therefore I have no more to ſay on that account; but I think it one of the greateſt improvements in huſbandry, to burn clay (the red ſort eſpecially) to aſhes, for manuring either meadow, or plough-ed-ground, provided the clay can be dug without any damage. I confeſs, I have burnt ſeveral loads of red clay into aſhes in a heap in the field, but never in a clamp, becauſe my quantity of clay did not make it worth my while, for it was only what I had dug out of a pond.

It is not only to burn clay into aſhes, but their beſt application is alſo to be endeavoured. It is certain, that the ſalts of all aſhes whatſoever are a moſt powerful enemy to the breed, and damage of all inſects: and, therefore, it is obſerved by ſeveral authors, they are good to ſow over turnip-ground, *&c.* to prevent the fly and ſlug, and ſo they are. But clay-aſhes are not an infallible remedy; for, by great and continued

rains

rains, their ſalts will be waſhed away into the earth, ſo as to make them loſe their efficacy in keeping off inſects.

However, they are very valuable, as they ſerve to nouriſh the turnip-crop. And, for doing that, theſe and all other aſhes ought to be ſown on the top of the young turnips, as ſoon as they appear in their firſt green leaf; and then two cart-loads of them will be better ſown than one on each acre, both of which will contain ſixty ſingle buſhels.

But I inſiſt on it, that neither theſe clay-aſhes, lime, nor tobacco-duſt, will aſſuredly prevent the inſect, becauſe their powdered natures may be rendered ineffectual by rains for this purpoſe. Clay-aſhes are a moſt powerful nouriſhment to all wheat, oats, barley, peaſe, and beans, if ſtrewed or ſowed by the hand out of a ſeed-cott over them in the ſpring-time, to the quantity of three cart-loads on one acre, and the ſame quantity on every acre of meadow-ground; then they will prevent the growth of moſs, bring up the honeyſuckle, kill all ruſhy, ſedgy graſs, and kill or prevent the damage of the grub, or cankerworm.

There is more than one way to burn clay into aſhes; one is, by burning it in a heap in the open air, as we do peat, with the help of roots, faggots, or other offal-wood and ſome turf

or

or mould put next on it, to kindle and light the fire, till it burns into the clay; and, then only with a gradual increaſe of fire, and cover of dry or wet clay, or both, on the outſide of the heap to enlarge the quantity of the clay and keep the increaſed fire at the ſame time from burſting out, the workman may carry on his burning with ſafety till he has burnt hundreds of loads of clay in ſuch a heap.

I ſhall not ſo much enlarge on it as otherwiſe I would do, but obſerve, that the burning of clay in a clamp is, by two authors, recommended as the beſt way of all others; and that the burning of clay wet is much better than when burnt dry, for reaſons the author on improving clay-ground aſſigns; but, for my part, I know of none, as yet, that burns clay for manure in a brick-clamp, and therefore ſhall here only remark, that, when clay is burnt to aſhes, ſuch aſhes are not to be carried into the field as they are, and as ſome have done, and laid them in a promiſcuous condition on the ground; no, this would be perfectly wrong management, and have the ſame chargeable effect, as happened to two ſeveral gentlemen through the ignorance of their bailiffs, who carried their clayaſhes, and ſpread them over the graſs-ground they were to improve, as they were burnt, without firſt ſeparating the groſs ſort from the fine; and thus

pieces

pieces of burnt clay, like little pieces of brick-bats, were laid over the graſs-ground, in aſſurance that the froſts would ſhoal and diſſolve them; but, on this account, their expectation was deceived; for theſe pieces of burnt clay had too much of the clinker nature in them, to diſſolve by weather, at leaſt, not in a very little time; which obliged the owners to be at the charge of having them picked off the graſs and carried away. A new method of applying theſe aſhes in a far more profitable manner than hitherto has been done by any perſon I know beſides one particular gentleman's bailiff, who moſt commonly every year burns more or leſs of theſe aſhes; for to burn clay into aſhes, and not know how rightly to apply them, is but doing the work in part.

January is the time for ſowing clay-aſhes on meadow-ground. And, if ſuch a ground is over-run with moſs, four or five inches in heighth, it will be eaten or burnt off by repeated dreſſings of aſhes, as I have been an eye-witneſs of; and where moſs has got poſſeſſion of meadow-land, it certainly concerns the owner to get it eaten off by aſhes with all expedition, becauſe this has roots, and is nouriſhed by the earth, to the impoveriſhment of the graſs. I knew a meadow of near five acres, that was ſo over-run with moſs, that it returned the owner but half one cart-

cart-load of hay in all one ſummer; when, if it had been in good order, it would have yielded ten loads at leaſt, as it has done, ſince it has been cured of this deſtructive weed; for this was an upland meadow of an extraordinary rich ſoil.

CHAP. IX.

OF PEAT.

PEAT is taken out of a black mooriſh ground at *Newbury*, by a wooden, narrow ſcoop, which brings it out like a long narrow brick; this they lay on the ground to dry in the ſummer time, and then ſell it for eight ſhillings a waggon load as proviſional fuel for families: but when it is to be uſed for a manure, after it is dried, they burn it in heaps of ten, twenty, or thirty loads, laying on more peat on the outſides, as the fire increaſes within, to keep it from having too much vent: however, in time there will appear a conſiderable ſmoke; and it was on the twenty-third of *May*, 1737, that I ſaw about ten great heaps burning for this purpoſe, near where it was dug. The great uſe of theſe aſhes was found out about thirty years ago; but in a little time after were brought into diſreputation, by their imprudently laying on too many at a time, which burnt up the corn.

Afterwards they found that ſix or ten buſhels were ſufficient to be ſown over an acre of wheat, peaſe, turnips, clover, rape-ſeed, or ſainfoine, as early as they conveniently could. But, as I ſaid before, they are afraid to ſow it over barley, leſt a dry time ſhould enſue and burn it up; for theſe aſhes are reckoned to contain three times as much ſulphur in them as in the coal-aſhes; and this they reaſonably imagine from their great brimſtony ſmell, ſparkling and jumping, when they are ſtirred as they are burning, and drying up the corn by their too great heat.

Theſe peat-aſhes, and likewiſe thoſe from wood or coal, will help to keep off the ſlug from peaſe and other grains, by the ſalt and ſulphur contained in them, and very much conduce to their preſervation in cold wet ſeaſons. But there is no ſuch danger to be feared from the aſhes of that peat, which grows as a turf over ſandy bottoms, as great quantities do on *Leighton-Heath* in *Bedfordſhire*, for theſe are as much too lean, as the other are too rank.

About *Newbury*, in *Berkſhire*, I think I ſaw the greateſt peat-ground in *England*, I mean, where they burn the moſt peat in heaps abroad, purely for making aſhes to dreſs land with; and here it is ſurpriſing to ſee ſuch numbers of large trees taken out of the ground, that lay buried eight or ten feet deep, ſome retaining their natural ſubſtance,

ſubſtance, and others decayed, and as rotten as touchwood.

Oak, deal, and other timber-trees of a prodigious ſize have been found ſo ſound, as to be made uſe of in building houſes. Stags horns and many other things have been likewiſe diſcovered ten feet deep. How theſe ſhould be here has employed the thoughts of many, whoſe opinions are various: ſome conjecture, that at the deluge, when the waters covered the face of the whole earth, and all nature ſuffered, not only the animal, but the vegetable part alſo had its ſhare, when every high hill under heaven was covered with fifteen cubits depth of water; and by the waters prevailing and continuing on the earth one hundred and fifty days, probably (ſay they) it might make ſuch devaſtation among trees, that they might be torn up, and, by the rapidity of them, be brought to theſe vale, or flatlands, where, as the waters abated, the trees were left, and, by the weight of their bodies, ſunk to their center; for it is obſerved, that, the bigger the body, the lower the tree deſcended.

Others are of opinion, that ſome great floods and ſtorms of winds of later date may be the cauſe of this wonderful accident. But certain it is, that many trees of a large bulk, unexpoſed to either wind or water, lie here entirely waſted to rottenneſs, and are as ſoft as butter.

In the next place, I ſhall proceed to give an account of the nature of this peat-earth. As I obſerved before, peat is commonly found in flat grounds, but, as to its depth of lying, it is uncertain. In ſome places, the bed, or *ſtratum* of peat, is found ſix feet under the ſurface of the earth, and, to come at it, they are ſometimes obliged to dig through one foot of top black mould, or loam, and, after that, through a white maum three feet thick. Sometimes a gravel lies betwixt the ſurface and the peat; but to know the true peat it is very eaſy, by its black colour, its hollow light body, and its being full of moſſy fibres, or thready roots, and not having any other earth intermixed with it; not but that there are divers kinds of peat of various colours, but the beſt is the jet-black ſort, which generally lies in bottoms next to rivers.

In the fen-countries of *Cambridgeſhire*, where the waters lie on the peat-grounds great part of the year, I am of opinion they are, in this manner, the cauſe that peat is very light and hollow, and by this the virtue of their peat and its aſhes is much leſſened, and its aſhes fewer in quantity. On the contrary, where peat lies wettiſh, but much drier, it has generally a more compact and cloſer body; and, the heavier ſuch peat is, the ſtronger and heavier the aſhes are,

and the more ſervice they will do, where-ever employed.

When I was at *Briſtol*, in the year 1737, the people told me, that they were ignorant of the virtue of ſoot, as it related to the manuring and fertilizing land, inſomuch that they threw it away on common ſtreet dunghills. Theſe peat-aſhes were formerly ſerved in the ſame manner, until a farmer, whoſe genius aſpired to further improvements in huſbandry, than were in common practice, ventured to ſow theſe aſhes on his ground; and, finding a ſurprizing effect of their goodneſs, continued their uſe for ſeveral years, before their value was publickly known, to his great profit.

Between *Hempſtead* and *Watford*, in *Hertfordſhire*, about the year 1738, a low meadow, that lies contiguous to the river's ſide, was broke up, and a moſt excellent peat diſcovered, not inferior (as is reported) to that of *Newbury* in *Berkſhire*, becauſe eight buſhels of theſe, which are equal to twelve common *Wincheſter* buſhels, are ſufficient to manure one acre of corn-ground with; and all that quantity coſts but five ſhillings and four-pence, at eight pence a buſhel, and it is ſaid to do as much ſervice as twenty buſhels of ſoot. A cheap dreſſing indeed, thus to return great crops, if the ſeaſon is kind, both of corn and graſs, beſides preventing the damage of inſects.

A peat-ground, near *Langley* and *Hempſtead*, has not been broken up for this purpoſe above four years, occaſioned firſt by the owner's taking a ſurvey of that at *Newbury*, and the information he received there of the great ſervice and value their peat-aſhes were of: On this he purchaſed three or four meadows lying near a river's ſide, which produce the peat I have been deſcribing, and ſeems to be as good as that of *Newbury*. Here Mr. *Lea* propoſes to furniſh any houſe with peat, to burn it as fewel all the year in grates, for fifty ſhillings, provided they take care of the aſhes, by burning no wood or other fewel with it, and let him have them all neat; for, if theſe are all ſaved and ſifted, they will be of a whitiſh colour and very fine, and in goodneſs near, if not quite as good, as thoſe burnt in heaps in the meadow.

Another ſort of peat is called ling-peat, ſuch as the common people pare off the ſurface of dry commons, as that is near *Leighton* in *Bedfordſhire*, and many other places in *England*; but this produces very poor aſhes, becauſe the ling or peat comes off a poor ſoil, and therefore is thrown to the ſtreet dung-hill; yet at a place about two or three miles diſtance from that, in a low meadow, not near a river, there a peat is dug called bog-peat, and is like that at *Newbury* and *Langley*, lies deep in the ground as they do, and of the ſame colour and goodneſs. Alſo about two

years

years ago, I am told, a certain gentleman in *Bedfordſhire* being informed of the ſervice of the *Langley* peat-aſhes, got hands from thence, and fell to work; and, having diſcovered an excellent ſort in his own eſtate, refuſed to ſell any, becauſe he will keep all he makes, for his own and his tenants uſes.

At *Weſt-Hyde*, they ſay, that *Newbury* aſhes are ſo full of ſulphur, that they dare not ſow them on wheat in the quantity they are ſowed on peaſe, or artificial graſs, leſt it cauſe them to grow too rank: But of late they have ventured to ſow them in a leſſer quantity, as ſeven buſhels inſtead of ten, on the wheat crop. Alſo, of late, they ſay, peat is burnt at *Newbury* in a clamp, like a brick-kiln near *London*; wherein, like that, they leave places for the fire to go by flues from one part to another, and ſecure all the outſides of it very cloſe, to hinder any fire coming out. *Newbury* aſhes were made a trial of at *Taplow*, between *Rickmanſworth* and *Uxbridge*, thus: —Nothing was ſown on one part of the field, the other part was ſown with ſmith's aſhes, and a third with theſe peat-aſhes: The ſmith's coal-aſhes did good, but the peat-aſhes exceeded the ſmith's, as much as the ſmith's exceeded that part which had no dreſſing on it.

Near *Langley* they do not burn peat in the manner of a clamp, or brick-kiln, but only in heaps of one or two hundred, or more loads in a

heap; and this work is carried on, almoſt all the ſummer long, in an open meadow, juſt by where the peat is dug. It is dug, or ſcooped out, in narrow pieces, near two feet long, in ſhape like a brick, and carried directly to the heap intended to be burnt; where, with a few faggots, a heap is ſoon ſet on fire, that muſt be kept lined, or covered without-ſide, according to diſcretion, with more peat, ſo that the fire muſt be neither ſuffocated, nor have too much vent; for ſo prompt is peat to take fire, as being a ſpungy fat earth, that a great heap need not be long attended, and therefore one man can manage the fires of ſeveral, at one and the ſame time, by reaſon they will gradually burn and calcine almoſt of themſelves, into a reddiſh coarſe ſand, like heavy aſhes.

Accordingly ſome heaps that have been little regarded after taking fire, have burnt, little or more, for two months together. And why theſe aſhes are of a reddiſh colour, and more coarſe than thoſe made from peat burnt in kitchen-grates, is, becauſe here the fire is confined under cover, and the ſmoak very much prevented evaporating, which in kitchen grates have both a greater liberty of a more expeditious and free conſumption, and therefore the aſhes are burnt whiter; for it is the nature of ſmoak to tincture all things of a very brown or reddiſh colour, that

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in a moderate degree are confined to it; and black if they lie very near, and long by it.

Then, after the peat is burnt, and calcined into theſe aſhes in the meadow, ſome are laid under cover, to be kept from the waſh of rains; others are laid up in the open meadow, in great long heaps like a hog's back, which, by their cloſe lying, and ridge ſhape, will remain very ſecure from damage all the winter, and in *January* or *February* next, they are brought under cover to be ſifted, and ſold to the farmers and gardeners; for, as they are burnt in large heaps, there will be great quantities of hard bits, and pieces of burnt earth, that muſt be firſt ſeparated. Likewiſe thoſe that are made by peat burnt in grates muſt be alſo ſifted, for the finer the aſhes are made, the further they will go, and do the more good.

It is certain, that if theſe aſhes after ſowing are attended by a long ſucceſſion of dry weather, they muſt not be expected to do much good the firſt year; nay, ſometimes they will do more harm than good, by aſſiſting dry hot weather to ſcorch up the corn or graſs. But then this is no more than what coal-ſoot will do, that we give one ſhilling for every ſingle *Wincheſter* buſhel delivered at *Gaddeſden*, twenty-eight miles from *London*: But, if ſhowers fall in time, then their profitable effects may be ſoon ſeen in perfection. Peat alſo, eſpecially when it is burnt in grates

not

not thoroughly dried, will yield an offenſive ſmell to the victuals that are dreſſed by it, and to the company that ſit by its fire: becauſe this light, ſpungy, ſubterraneous, black earth, being full of moſſy fibres, or roots, caſts out ſuch a brimſtone ſmell, as makes it diſagreeable to all within its reach.

CHAP. X.

OF COAL-ASHES.

THESE excellent aſhes are much uſed by gentlemen and farmers who live within thirty miles of *London*. By gentlemen chiefly, for improving their meadow-ground: by the farmer for improving his meadow-ground, his artificial graſs, his wheat, and his barley crops, &c. Firſt, the farmer, for his meadow-land, thinks it a cheap manure to lay forty buſhels of theſe coal-aſhes on each acre, for producing plentiful and early crops of the beſt of graſs, for three or four years together. Secondly, The farmer thinks it of the like ſervice to lay the ſame quantity of theſe coal-aſhes on each acre of his clover, ray-graſs, trefoile, lucerne, or ſainfoine in *March*, as the beſt time of all others, and that in the beginning of it, becauſe theſe coal, like peat-aſhes, are with difficulty forced to part with their ſulphureous quality, which is the

the riches of them, and therefore require great and long waſhings of rain to make them part with it. On this account it is, that theſe aſhes become more and more in uſe, eſpecially for thus ſowing them on artificial graſs, as being thought by many to be more profitable for this purpoſe than ſoot, becauſe they are of opinion, that as theſe coal-aſhes coſt but three-pence or four-pence a buſhel, and ſoot ſometimes ten-pence or a ſhilling a buſhel, and very much adulterated into the bargain, they are of the greateſt profit for artificial or meadow graſs. They are alſo much uſed in making a compoſt of dung, or highway or pond mud, with chalk, or lime, or ſoap-aſhes, for meadow-ground; and ſome ſow coal-aſhes naked, as they come from *London*, on their growing corn in *February* and *March*, to great advantage, particularly when a wet ſummer follows their application.

There are many farmers in *Hertfordſhire*, that grudge not to give three-pence or four-pence a buſhel, or twenty-pence for a ſack-ful of them. They, of late, have got into ſuch reputation for fertilizing natural and artificial graſſes, that great quantities are every year made uſe for this very purpoſe; but few farmers believe they will do ſervice to ploughed grounds. Others ſay they will do more good on ploughed ground than on meadow, that is, on ploughed ground, that clover, ſainfoine, trefoile, and

and ray-graſs are ſown on, becauſe ploughed ground will ſooner draw them into it, than the hard cruſt of meadow ground can. Accordingly, ſome think likewiſe, they will prove efficacious on wheat if ſown early in this month. Next to ſoot, coal-aſhes are preferred, as a choice manure for clover, ſainfoine, and all artificial and natural graſſes to that degree, that many farmers believe theſe aſhes are better than ſoot for all ſorts of graſſes. But this I cannot believe; however, if coal-aſhes are made from private fires, and kept under cover till they are thus uſed, they will do prodigious ſervice for two or three years together, if a hundred buſhels of them are ſown over one acre and a half of ſuch graſs ground. About *Rickmanſworth*, the farmers ſow theſe aſhes on their firſt crop of clover that grew among barley, and they will ſoon make it come up in their gravelly loams into a fine head, for giving their ſuckling ewes a bite as ſoon as the rye they ſowed for them laſt year is eat off; which, with only the ſheeps dung and ſtale, will cauſe the clover to laſt two or three years in good heart, without any further aſſiſtance from dung or manure.

On the clay land, that has been fallowed in broad-lands, lay in heaps, on one acre, the quantity of ſixty or a hundred buſhels of coal-aſhes, the more the better, and ſpread them with a ſhovel or ſpade in a dewy morning to prevent

prevent their flying too far, and then plough them in as ſhallow as poſſible into broad-lands again, acroſs the laſt way, or into four thoroughed ſtitches, or by hacking the ground, this will reduce it to a loam.

CHAP. XI.

OF WOOD-ASHES.

WOOD-ASHES will do great ſervice both to natural and artificial graſſes; but they will not laſt above half the time of coal-aſhes, becauſe they are of a much ſofter and looſer nature than the coal ſort are; and, therefore, if wood-aſhes are laid on at *Lady-day* it is time enough, for theſe are quickly waſhed in, and therefore will laſt but one year well. One hundred and ſixty buſhels of wood-aſhes are equal, for this purpoſe, to half the quantity of coal-aſhes; and either of theſe two laſt quantities is but ſufficient to dreſs one acre well of graſs ground.

I have ſown five cart loads of wood-aſhes on one acre of meadow, and found them not too much, provided they are ſowed on the ſame in *December*.

There is a new piece of good huſbandry of late acted by ſome that buy their ſoot in ſummer, and lay it in the ſame field that is to be ſown

ſown with it, where they thatch the heaps with ſtraw, that keeps off all weather.

Aſhes, either of the wood or coal ſort, are a very good dreſſing for corn or graſs grounds; the firſt we buy for three halfpence the ſingle buſhel, and ſow it out of a ſeed-cot in our wheat, rye, or barley-ground, in *February* or *March*, by throwing twenty, thirty, or forty buſhels on an acre of the ſurface; but the coal-aſhes are ſo full of ſulphur, that eight ſacks, or thirty-two buſhels, are enough for an acre on ſome ſoils, and are generally uſed on graſs grounds, where they will burn off the moſs, and ſuddenly breed the honey-ſuckle graſs to that degree, that I muſt needs ſay I think it an excellent manure, eſpecially if rains ſoon follow their ſowing. Farmer *Wright* of *Barley-end*, this laſt ſpring, put on about twenty-four buſhels on an acre, and had ſuch a burthen as he never received in one year on the ſame ground theſe thirty years paſt.

It was the expreſſion of a judicious man I was in company with, that a buſhel of coal-aſhes was as good for ſward ground as a buſhel of our wood-ſoot that is here ſold for ſix-pence; becauſe the ſulphur in one was ſo much hotter and more preferable to the ſalt in the other, and, next to ſoot, is one of the beſt remedies for killing the clob-weed, ruſh, and other coarſe graſſes that too often infeſt the meadow-grounds.

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The wood and coal aſhes of late have gained great reputation for their many fertile uſes, as well by themſelves, as mixed with ſhort horſe-dung, cows, fowls, and other dungs and ſtover; ſo likewiſe have thoſe made from burnt clay, mould, peat, turf and ant-hills: yet I know of a large meadow containing two or three hundred acres, that were run over with ant-hills very thick; the hills were cut up with the wide ſharr-plow, and the graſs-part put into heaps with the forks to lie and rot, but the mould-part was immediately ſcattered over the ground with the ſhovel; the turfs being not to be meddled with till they are got fine by lying, fermenting and putrifying almoſt a year, and then it is to be ſpread about the field: The reaſon for not burning the turf into aſhes, was, becauſe in this manner it contained and kept in its ſalts better, than if often turned and expoſed to the waſhings of great rains, or burnt; and alſo becauſe this ground lying low and wettiſh, this way would better thicken it, and keep it drier hereafter, than if it was reduced to aſhes, which I think is very conſonant to good huſbandry.

But whoever buys theſe *London* aſhes, muſt take particular care that they be pure and not adulterated with duſt and other trumpery, for

then they will likely deceive your expectation; and ſo will the aſhes from great brewhouſes, ſmiths forges, glaſs-houſes, and other places in and about *London*, where by the fury of their large fires the aſhes are burnt to that degree that little goodneſs is left in them, which cauſes thoſe from private families to be more excellent, as they are leſs burnt, for promoting the growth of vegetables.

In the country we make a particular diſtinction between aſhes from wood (the hard ſort eſpecially) and thoſe from furze, fern and ſtraw, for the latter are not ſo valuable as the former, becauſe the wood ſort exceeds thoſe from furze, as much as the furze does thoſe from fern, and fern from ſtraw. Yet notwithſtanding the great goodneſs there is in theſe ſoap-aſhes and all others, they may be uſed to a fault; for I have known this dreſſing ſo often repeated on one and the ſame piece of ground, that they have lain ſo thick at bottom as to choak the growth of the graſs to its very great damage.

However, to do juſtice to this fertile dreſſing, I muſt commend it next to ſoot, lime, and fowls-dung, for not breeding weeds, at the ſame time it nouriſhes the earth, as the horſe and ſome other dungs are apt to do; which has raiſed my eſteem ſo much for the

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London aſhes, that when I have ſent ſtack-wood thither, my team has brought back a load of theſe from the town lay-ſtalls, for which we pay twelve-pence there; but theſe are wrong places to take them from, becauſe as they here lie open to the weather, they are often waſhed by the rains, and ſo loſe a great deal of their ſulphur, which is the eſſential part of their dreſſing; whereas if the aſhes were ſaved under cover, as they are brought out of the houſes, their goodneſs might better be depended on.

CHAPTER XII.

OF SOOT.

SECT. I.

Soot on Wheat.

MARCH is the proper time to lay ſoot on wheat, becauſe by this time, we reckon, ſnows do not lie long on the ground; for deep ſnows are oftentimes a great enemy to this manure, eſpecially when they are diſſolved by ſudden cold thaws; for, then, new-ſown ſoot is apt to be waſhed into the ground too ſoon by them, and leave the wheat but little the better for the great expence a farmer is at, of laying out twenty ſhillings in ſoot to dreſs an acre. Let

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twenty buſhels of coal-ſoot be ſown over each acre of land, as thin as can well be ſown out of a man's hand, over wheat ſown on broad-lands, or in two-bout-lands; and then, if the ſoot lies but two days, free of the waſh of rains, it will take the ground ſo gradually, as to prove one of the beſt of dreſſings, by enabling this golden grain to withſtand the ſeverity of froſts and winds, that commonly reign in the ſpring-ſeaſon, and alſo bring the wheat under ſuch a quick growth and cover, that the droughts cannot likewiſe be of prejudice to it. Thus this noble ſulphureous manure enriches the ſame ground for three years ſucceſſively, and is ſo efficacious, that we ſeldom fail of having a good pea-crop the next year after.

Soot is a moſt powerful manure, made uſe of by many of our beſt farmers in the *Chiltern*, though but by few in the *Vale*, becauſe they grudge the charge, and ſupply it with their flocks of ſheep; not but that it will do as much good there as any where: its chief uſe is on wheat, rye and barley, and is commonly ſown from *Chriſtmas* to *April*, on any of them out of a ſeed-cot as thin as can well be, to the quantity of twenty or twenty five buſhels on an acre, for if the ſoot was to be ſown ſooner, the winter rains and ſnows would endanger its goodneſs being waſhed away too early; but of late ſome

ſow

ſow their wheat and rye in *Auguſt*, that they may eat their firſt head in *November* with their ſheep, as reckoning it to be near as good a crop as of graſs, and then will dreſs them with ſoot about *Chriſtmas*, that they may the ſooner get a ſecond head.

But when they ſow ſoot, in the vale, it is done about *Candlemas*, and then they ſow eight buſhels on each half acre land, as thin as poſſible, ſo they cover all the ground; and, if a dripping-time follows, it does a great deal of ſervice, in keeping off chills, by warming the roots of the wheat; and, indeed, if no rain happens for ſome time, the very moiſture of this ſort of ground will draw in the quinteſſence of the ſoot to its great benefit.

The ſame quantity will do on ploughed-ground, ſowed over wheat or rye, in *January*, either on broad-lands, or on two-bout ridges. But, I am of opinion, it is better let alone, till the latter part of next month, for then you will be more ſecure againſt the fall of deep ſnows, which, in *January*, are very apt, by a ſudden thaw, to waſh away the ſoot too ſoon; for many farmers have loſt the benefit of ſoot this way, and by very great and long rains that have fell preſently after the ſoot has been ſown, and waſhed away its goodneſs before it could regularly take the ground, which it ſhould have ſome dry days to do, to make it truly efficacious.

SECT. II.

Soot on Barley.

IF we dreſs barley with ſoot, about a week or a fortnight after it has been ſown, we ſow twenty buſhels of it over each acre; but others think it a better way to ſow this quantity of ſoot, as ſoon as the barley-ſeed is ſown, and harrow both in together; and indeed, I have found it the beſt way, by reaſon it lies in this form of ſowing, cloſer to the kernels, than when the barley is ſown firſt, and harrowed in, and the ſoot ſown afterwards; nor has the foot ſo much power this way to burn the blades of the barley, in caſe a dry hot ſeaſon ſhould follow, as it has when ſown after the barley is harrowed in; and ſo efficacious is ſuch a dreſſing of ſoot to the ground, that a pea-crop ſowed on the ſame, in the next ſpring ſeaſon, is hoped for in a plentiful manner, and by this means ſeldom fails the owner's expectation.

But the manure of ſoot will not anſwer to profit, if made uſe of in three ſorts of land; in a looſe light ſand, in marſh lands, or in three or four-bout lands. In the firſt, the earth is too hollow and ſpungy to retain it long enough on its ſurface to aſſiſt the roots of the barley; in the ſecond, the land lies too flat and wet, to give the ſame benefit to the grain; in the third, the wa-

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ter-thoroughs are too deep, and the ridges too narrow, to receive a due aſſiſtance from ſo light a body as ſoot is; and, when it is waſhed off into theſe thoroughs, it is in a manner loſt, becauſe little or no corn grows here; but, when it is ſown on barley, that is ſown on broader lands, it will anſwer, as I have before obſerved. Secondly, I know one, and only one *Vale* farmer manure his barley-crop with ſoot, and, I was a witneſs, it did great ſervice, though not ſo much as if he had made uſe of a ſufficient quantity; but this he did not do; his quantity I think was no more than fifteen buſhels to an acre, which he ſowed over the ſprouting barley, juſt as its green blades appeared above ground; whereas, had he ſown ten buſhels on every half acre ridge land, he had compleatly manured all the barley ground. However, the ſoot he made uſe of did him a great deal of ſervice.

This is alſo a moſt excellent dreſſing if that quantity is ſowed on barley juſt harrowed into the ground, and will not only return a good crop of this, but alſo another of peas, beans, thetches or lentils, the ſucceeding ſeaſon: on new ſown turnips there is nothing better than ſoot, becauſe it deſtroys and keeps off the inſects, and vaſtly forwards the turnips growth.

SECT. III.

Soot on Graſs.

IT was on the ſecond day of *February* that a gentleman had one hundred and ſixty buſhels of ſoot laid on his meadow-ground, which killed the moſs, and increaſed the crop of graſs for four years after: but it has a little fault belonging to it, and that is, the ſoot is apt to imbitter the hay that is made of it the following ſummer; but is excellent for ſaving and bringing forward late ſown wheat: and alſo, if ſoot or coal-aſhes are ſown over a ſecond year's crop of clover, it may bring on a full bite in *April*, and cauſe you to ſtand a chance of having double the quantity of graſs, than you would otherwiſe have, if you did not ſow any of this, or other manure, or dung; and therefore is of great value for bringing on an early cover or head of graſs, that may prevent the ſun's burning up the tender blades and roots of it.

Now we that live in *Hertfordſhire*, at twenty or thirty miles diſtance from *London*, think it worth our while, in ſome years, to buy *London* coal-ſoot, even at one ſhilling a buſhel charge, when at home, to lay on our meadow-ground; for, on this, the ſoot will not be waſhed too deep into the earth, as it ſometimes is, in looſe ploughed land,

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land, but will help to preſerve the graſs in a growing condition, againſt froſts and chills, kill worms, grubs, dars, and ſlugs, or make them quit the upper part of the graſs ground, and ſo prevent their uſual damage; will burn up and deſtroy moſs, the common greateſt enemy to meadows; will bring on a ſpeedy head of graſs; and, if a wet, warm ſeaſon follows it, in due time there will be a vaſt burthen of the beſt of graſs. Nothing is known with us to come up to this manure of coal-ſoot, which as far exceeds wood-ſoot, as a ſhilling does ſixpence, and will nouriſh ſuch graſs-ground ſo well for three years together that no other aſſiſtance need to be given it in that time. I write from experience, as having tried the force or ſtrength of moſt ſorts of manures in meadow-fields, and therefore recommend this, as the capital, efficacious, and moſt profitable of all other manures. Twenty ſingle buſhels of this ſoot, ſow one acre, but twenty-five will do it better.

SECT. IV.

Soot on Sainfoine, &c.

ON ſainfoine, twenty buſhels of this ſown at *Candlemas* on an acre, once in three years, exceeds all other dreſſings whatſoever. Thus likewiſe will ſoot do vaſt ſervice to clover, ſainfoine, or any other artificial graſſes; fifteen

or twenty buſhels dreſs one acre for two or three years: and, if laid on in *February*, it will force on ſo quick a growth, as to ſecure their roots againſt the damage of ſummer droughts, and produce, very likely, three loads of clover, or ſainfoine hay, from off one acre, beſides a great return of after-graſs.

CHAP. XIII.

OF MALT DUST.

IF we dreſs our barley-crop with malt-duſt, we commonly ſow but twenty-five double buſhels, or ten ſacks of it, over each acre thus: out of a ſeed-cot, a man ſows it broad-caſt, as ſoon as the barley-ſeed is ſown, and harrows in both together; and, if ſhowers fall in due ſeaſon, there is no fear of a good crop of barley.

CHAP. XIV.

OF SALT.

COMMON ſalt is of a far more potent nature than aſhes, lime, or ſoot, and like them, will cauſe all crops of graſs and corn to grow all the winter, when others that want this help are cut off, chilled, and killed by the power of froſts, wets and winds. How greatly then does

does this noble manure help the farmer to crops of corn and graſs beyond all others, as to the quantity, quality and cheapneſs of it, when it was at two ſhillings per buſhel, as it happened to be this laſt year, during the exemption of the duty; becauſe it anſwered the great ends of chilling or wounding the inſect, and preventing the fatal effects of colds. One gentleman, that lives in *Wiltſhire*, ſowed only ſix buſhels of a common ſalt over one acre of corn-ground, and had the beſt crop in return that he was ever maſter of.

Here I ſhall endeavour by the neareſt eſtimate, that I and other farmers can make, to ſhew the conſumption that is made of ſalt in one year by my family, and ſuch a one that conſiſts of a wife, ſix children, a ploughman, plough-boy, taſker, and maid ſervant: viz.

	B.	P.	Q.
Salt for three bacon hogs, each weighing forty ſtone, that take up half a buſhel each,	1	2	0
Salt for three pickle-porkers weighing twenty ſtone each, that take up a peck and a pottle a-piece,	0	3	3
Salt for our beef, a quart each week for three ſtone,	1	2	2
Salt for our table and kitchen uſe at a quart per week,	1	2	2
Carry over —	5	2	3

	B.	P.	Q.
Brought over,	5	2	3
Salt for the butter of ſix milch cows that are conſtantly kept throughout the year, allowing twenty four pound per week, that is ſold as freſh butter at the market, a quart a week,	1	2	2
Salt for brining twenty acres of wheat,	2	0	0
Total —	9	1	1

CHAP. XV.

OF OIL CAKE.

ONE thouſand of theſe cakes make ten quarters of meal, which will manure four acres of land well, for twenty ſhillings an acre; for this number of cakes coſts four pounds at the oil-mills near *Cambridge*; and ſo great a ſtreſs is laid on this dreſſing, that at *Sanden* in *Eſſex*, upon the borders of that county, lives a farmer, who erected a mill on purpoſe to grind theſe cakes, whoſe powder he uſed inſtead of lime, for wheat, turnips, barley, and other vegetables, and will be ſerviceable in a great degree to

* This is not a matter of mere huſbandry; but I reſerve it as the particular is a curious one.

EDITOR,

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to the next year's crop of *Lent* grain, either ploughed in with wheat-ſeed, or ſown on the top of that, or barley, peaſe, clover, rapes, &c. It is a very fertile manure for rather more than two years. Some allow that this meal or powder will not waſh away ſo ſoon as powdered lime, malt-duſt, and ſuch like.

CHAP. XVI.

OF HORN SHAVINGS.

THIS manure is taken notice of by *Houghton*, *Worlige*, and many other authors, who all write in great praiſe of them. One ſays, that, in the year 1694, horn ſhavings were then ſold, in *London*, for eight ſhillings and ſixpence a quarter ſack, and that five ſuch ſacks, ſtrewed and ſcattered in furrows, before the plough, at *Michaelmas*, will very much improve two acres of land ſown with wheat-ſeed; but do little or no ſervice to hot ground. Accordingly, he ſays, when he was a boy, and now was above ſixty years of age, he knew a wet cold place, of ſix or ſeven acres of ground, that had ſixteen ſacks of theſe ſhavings ſtrewed on it, and it brought corn plentifully for four years together; and that then, being laid down with graſs-ſeed, it brought forth very good graſs, and continues

continues ſo ſtill; that the number of horners were then twenty-four, who made each of them above twenty ſacks a year.

But this account is not ſufficient, to inſtruct an ignorant farmer in the right uſe of this beneficial dreſſing, or durable manure; and, therefore, I ſhall endeavour to carry on this ſubject a little farther, and ſhew a larger and more particular uſe of horn ſhavings. Of theſe there are two ſorts ſold by the horners in *London*, or thoſe who, out of ox's, cow's, and bull's horns, make combs, inkhorns, and a hundred other ſorts of utenſils and knick-knacks, moſt of whom live in *Petticoat-lane*, near *Whitechapel*, *London*.

The ſmall ſort of horn-ſhavings are thoſe commonly made by the inkhorn-makers, who ſell them for about eleven ſhillings a quarter-ſack, and two ſacks ſow an acre. The large ſort are eight ſhillings a quarter-ſack, and two and a half of them ſow an acre; but the ſmall ſort are reckoned the cheapeſt, becauſe they go a great deal the fartheſt, by lying cloſer and covering the more ground.

Both theſe are, by ſome, thought not to be ſo proper a manure for wet as for dry land, becauſe the larger ſort, eſpecially, is apt to hold water, and chill the roots of wheat in ſuch wet ground, to its damage; but where the earth lies

lies dry, either in vale or chiltern lands, they are a moſt excellent manure, and will do great ſervice, for ſeveral years. In our chiltern, gravelly and other dry ſoils, we uſe them in this manner: if wheat-ſeed is to be ſown in four thorough-ſtitches, or what may be called two-bout lands, after all the ground is harrowed plain, horn or glovers ſhavings are to be ſown over all the land; and then wheat-ſeed muſt be ploughed and ſowed in with them. A clover-lay was ploughed up in the chiltern country after *Michaelmas*, into broad-lands, and let to lie all the winter, to rot the graſſy ſurface that was now turned down, and alſo the roots of the clover againſt the ſpring ſeaſon, in order to ſow the field with hog-peaſe: accordingly in *February* the farmer harrowed the ground all over till it lay plain and ſmooth; then at the beginning of *March* he ploughed the cloſe acroſs the laſt ploughing, and at the ſame time ploughed in a ſufficient parcel of horn-ſhavings, which he bought in *London*, thus: before he began to plough the land this ſecond and laſt time, he ſowed it firſt over all with the ſhavings, and then a man followed the plough, and ſowed or ſprained in the pea-ſeed, which was a mixture of the horn-grey and maple hog-peaſe; and when all was done, he harrowed the ground as plain as he could, and then the work was finiſhed. By which manage-

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ment the ſeed and the manure lay together, and thus produced ſuch a great crop of peas, that the taſker commonly thraſhed a quarter, or eight buſhels of them in a day. And it is no wonder, that theſe ſhavings are ſo efficacious in producing ſuch a large crop of peas, for they are accounted at leaſt three years dreſſing for any land they are ploughed into, becauſe they are of a very tough, hot, and oily nature, and therefore exquiſitely well ſuit all dry, huſky lands, eſpecially ſharp gravels, as well as cold, wet, clayey earths; and as they hollow the ground very much, they are the moſt agreeable manure that is for a pea-crop. But this profitable piece of huſbandry of manuring ground for pea-crops with horn-ſhavings, extends itſelf in particular to the fertilizing the next crop of grain that is to ſucceed the peas; becauſe when the ſhavings lie in the ground the firſt ſummer, for aſſiſting them in a fruitful growth, they are rotting and mixing with the earth, and ſo meliorate it, that one or two ploughings will prove ſufficient after the pea-crop is got off, to ſow wheat-ſeed in the ſame land.

Horn-ſhavings are a warm, ſpirituous hollow dreſſing, and are of two ſorts, the finer and the coarſer. The firſt is generally ſold at twelve ſhillings the twelve buſhel ſack, and the latter for leſs, and are ſown on wheat, rye, or barley ground

ground juſt before the laſt ploughing, to the quantity of twenty-four buſhels on an acre; that will laſt ſix years in the earth.

But here an objection may ariſe, that ſuch hot, dry, gravelly ground is not ſo proper to be dreſſed with horn-ſhavings, as the colder and ſtiffer ſoils are. It is true, that they are moſt natural for the latter ſort of land, becauſe, by their hot and dry nature, they will warm ſuch cold ſtiff ground, keep it hollow, and help to preſerve it from the damage of chills by too much wet weather, which ſuch ſoils are very ſubject to. Yet as a hungry gravel is a ſort of land that often ſpoils great quantities of the new ſown ſeed of corn, when great rains fall preſently after ſowing, by binding and cloſing the ſurface ſo, that many of the tender blades of wheat or barley cannot get through it; it is a proper manure to prevent this misfortune, and at the ſame time, by its tough and ſpungy parts, it will continue and remain a feeding dreſſing to ſuch a lean voracious ſoil, much longer than either ſtubble or any other dung; and alſo, by receiving and retaining of waters, the ſhavings will keep ſuch land in a moiſt condition in the drieſt hotteſt ſeaſons; a benefit of no ſmall importance to barley crops. If wheat ſeed is to be ſown in gravelly ſoils broad-caſt, or on any dry loams, then the ſhavings are to be ſown thus. When

all

all the ground is harrowed plain, and ready for the laſt ploughing, ſow your ſhavings on the top of it, and plough them in as ſhallow as poſſible; then ſow your wheat ſeed broad-caſt, and harrow it in, and the harrow will tear and raiſe up the ſhavings towards the ſurface, and mix them with the ſeed.

CHAP. XVII.

OF WOOLLEN RAGS.

IN ſome chalky, gravelly, and ſand loams, it is practiſed to ſow their wheat in broad-lands, and woollen rags, at the ſame time, chopt ſmall, and plough both in together; and thus one ploughing performs both, which is good huſbandry, becauſe ſuch chopt rags lying in the ſame ſtratum of earth with the wheat roots, ſupply, in ſome degree, a watering pot; for, on every ſhower of rain that wets theſe rags, they receive and retain ſuch a ſupply of moiſture as nouriſhes the wheat-root a conſiderable time; ſo that the dryeſt ſummer cannot burn or dry the wheat-roots ſo much as to ſpoil their crop. And this it the more ſurely performs, by reaſon the cover of earth that lies on the roots contributes to ſhade them, and ſhelter the rags from the vehemency of droughts.

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In order to ſow wheat in a chalky ſoil, after the laſt ploughing but one is performed, all the ground is to be harrowed plain, and then, if the land is to be dreſſed with woollen rags that have been chopped, they lay three or four hundred weight of ſuch rags on the ſame.

Some will dreſs and meliorate chalk and the chalky loams with rags chopped ſmall in the firſt place, and then ſown out of a ſeed-cot all over the ground, about five hundred weight on an acre, the beginning of *June*, and then ploughed in broad-lands, which will warm and enrich the earth againſt the wheat ſeaſon, and afterwards receive and hold the rains ſo as to keep the roots of the corn moiſt in this dry ſoil, and by the heat of their woolly ſubſtance, help it very much againſt the rigour of froſts and cold winds.

When your chalk, chalky loam, ſandy loam, or other dry ſoil, fit for this purpoſe, is harrowed plain, ready for ſowing and ploughing in wheat-ſeed, then empty eight ſacks of chopped rags on one broad-land acre, each ſack containing fifty-ſix pounds weight, and each ſackful to lie in one heap, at ſome diſtance from another. When this is done, let a man fill a ſeed-cot with them, and ſow the rags broad-caſt, with his hand, over the ground, and ſo on till the ſurface of the acre is covered; then let a man directly ſow his wheat-ſeed, out of a ſeed-cot, all over the ſame land,

and plough both rags and wheat-ſeed in together.

A chalk, a gravel, and a dry loam, or a mixture of all, had the uſual yearly dreſſing beſtowed on ſome parts of it, of woollen rags chopt ſmall, ſown, and ploughed in, both for wheat and barley crops, as the beſt ſort of all other dreſſings; becauſe rags always agree with this dry land to admiration; for, if but one great ſhower of rain fall on them, they will lodge and retain a conſiderable deal of its water.

If we dreſs our barley crop with rags, it is commonly done when it grows on chalky, gravelly, or ſandy loams; here the woollen greaſy rags will do vaſt ſervice, if they are firſt chopped ſmall, and ſown over all the land broad-caſt out of a ſeed-cot and a man's hand, and then ploughed ſhallow into the earth; which as ſoon as done the barley-ſeed is to be harrowed in; and, as they are of a hollow ſpungy nature, the rags will lodge the rains and dews, and become a ſort of watering-pot to the roots of the barley and the earth about them, and adminiſter ſuch a moiſture to them in theſe hot, dry, parching ſoils, that the barley-crop will grow with great vigour and expedition in the hotteſt ſummers, and not only be ſerviceable to the firſt crop of barley, but will inrich the ground for two or three years; at leaſt the rags will become a dreſſing for the next year's crop of peaſe, oats, thetches, or tills;

for woollen manure agrees ſo extremely well with this ſort of dry land, that the *Ivinghoe* and *Edgborough* farmers buy great quantities of it every year, ſome from *London*, others from the north, out of *Bedford* and *Northamptonſhires*, for thus improving wheat and barley crops that grow in their pooreſt chalky grounds, even where an acre of ſuch land is let for half a crown a year; and unleſs the farmers are at this extraordinary charge for a manure, beſides their fold-dreſſing, it would hardly, in ſome years, be worth ploughing and ſowing.

CHAP. XVIII.

OF CRAG.

ABOUT *Woodbridge* they make uſe of a ſhelly marle, which they there call Crag, which about thirty years ago was found out by mending a cart-way with it, where, afterwards happening to ſow grain in the ſame place, it proved a better crop than ordinary, and ever ſince they dig it for a manure. It is a reddiſh ſhelly earth, which being laid on to the quantity of twenty-five cart-loads on one acre, dreſſes it for ſeven or twelve years; ſo that, at this time, they have dug pits of it in many places, and carry it to great diſtances, where it returns them prodigious burthens of grain in their hungry

ſandy grounds. In this earth cockle and other ſhells are commonly found mixed, which has cauſed ſome to imagine that this ground was formerly gained from the ſea; and the rather, becauſe the ſalt water is at this time not far from it; as it is ſaid of the moſt fertile *Romney-marſh*, whoſe bottom ſeemed to me to be of a ſhelly earth, which has been gained from the ſea not many years ſince, and produces ſuch graſs which exceeds all others in *Kent*, for fattening cattle in a little time without rotting them.

CHAP. XIX.

OF SEA-WEED.

IN *Cornwal*, in the winter and ſpring ſeaſons, when ſtorms moſtly cauſe the waves to tear up the ore-weed from the bottom of the ſea, and caſt it to the next ſhore, they clamp it to rot alone, or mix it with ſand, mould, or lime, which will in time ſo attenuate and divide this gluey ſubſtance, as to reduce it into a much ſhorter nature, and fit it for ploughing in, in *July*, or afterwards, for a wheat or barley crop, &c. as being one of the beſt of dreſſings for all ſorts of arable lands; and ſo are their pilchards that ſometimes throw themſelves on their ſhore in prodigious quantities.

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CHAP. XX.

OF HAIR.

WHEN cows, or hogs-hair, is bought of the tanner or butcher, it is commonly ſold for eight-pence a buſhel; and twenty buſhels ſcattered over an acre of land, will be ſufficient for any crop that is to grow in the ſame.

CHAP. XXI.

OF PIGEONS-DUNG.

PIGEONS-DUNG, is indiſputably the hotteſt dung for all wet clays and moiſt loams, where, in a peculiar manner, the fiery ſalts act moſt potently in bringing forward the growth of all grain, graſs, and trees, that are ſowed and planted in theſe chilly cold grounds, and is therefore ſent many miles by the vale-men, and bought at ten-pence the heaped buſhel, chiefly for their barley crops, becauſe in wheat-grounds it does not ſo well anſwer, if mixed with the earth about *Michaelmas*, for then by its lying in or on it near twelve months, the rains are apt to waſh away its light fertile properties too ſoon; but if ſowed the latter end of *February*, or the beginning of *March*, this dung will prove moſt efficacious if ploughed or harrowed in with the

grain, or ſowed out of the ſeed-cot on the ſurface immediately after the barley is got into the ground; however, in my opinion, harrowing in is the beſt way, for then it lies the neareſt to the kernel's body; and if a wet time ſhould ſucceed, the grain will ſoon get a head that will cover its roots, and ſhade them againſt the ſcorching heats of ſummer: but though I mention only clays and loams, yet is there no one ſoil as I know of, that this dung will not do good on, both in arable and meadow grounds.

Hens-dung, and all manner of other fowls dung, are of the very ſame ſort of ſervice to all land, though not quite ſo hot and good as the pigeons, if they are throwed on about *Chriſtmas* or *Candlemas*, for then it is to be hoped ſufficient quantities of rain will fall before the ſpring is over, as to cauſe all corn and graſs under it to get a forward head and ſhelter againſt the ſummer droughts. This hen-dung, with us, is ſold for ſix-pence the double buſhel, put into the meaſure as hollow as can be, but if trod in and heaped, then a ſingle buſhel is reckoned at the ſame price, and is uſed in all the intents and purpoſes as pigeons-dung is. Hen-dung is frequently mixed with chaff, malt-duſt, ſhort horſe-dung, cows-dung, &c. by putting any of them under where theſe fowls rooſt, that they may be incorporated and rot together, for here this manure

nure will mix with, and diffuſe its ſalts into their ſeveral ſpecies, ſo as greatly to encreaſe a large quantity of excellent hand-dreſſing for all ſorts of corn, graſs, or wood-land. This makes ſome reckon one load of neat hens-dung to be worth ſix of ſome common dung, and is of ſuch light clean portage in ſacks on horſe-back, that it may be carried and ſowed on diſtant grounds where the cart cannot conveniently come.

When they make uſe of pigeons-dung, they ſow it by the hand out of a ſeed-cot, and, as ſoon as they have harrowed a ridge-land, they ſow about ten buſhels over the half acre, and then immediately ſow their wheat-ſeed, and plough all in together.

Pigeon's dung is certainly very much coveted by all huſbandmen, but all cannot have it, tho' they willingly give ten or twelve-pence a buſhel for it, and fetch it ten miles an end.

I have this uſeful remark to make known, that pigeons-dung made uſe of from a dove-loft, is eſteemed to be half as good again as that made from a dove-court, becauſe, in a court, the dung lies ſo near the ground, that it draws much of its quinteſſence into it; which in a loft it is delivered from, as falling and lying on a boarded floor; which item may ſerve as a valuable conſideration to all thoſe farmers who buy and fetch this pigeons-dung

at ſome diſtance from their houſes; a thing commonly done to help out with that made at home. On this account I have known an *Ayleſbury* vale farmer drive his waggon above ten miles an end, and bring home fifty buſhels at a time, at one ſhilling each, of this dung; and, as ſoon as the barley-ſeed is ſown, a man with a ſeed-cot full of it, ſtrews or ſows it out of his hand, to the quantity of twenty buſhels over each acre of land, and then harrows it in with the barley-ſeed. This manure, for many years paſt, has been eſteemed the richeſt of all others for fertilizing all crops of corn it is ſown amongſt.

CHAP. XXII.

OF RABBITS-DUNG.

RABBITS-DUNG is of ſo hot and fertile a nature to both ploughed and ſward ground, that it is ſold with us for ſix-pence the ſingle buſhel trodden in, after it has lain near twelve months under cover, rotting, and is moſt commonly made uſe of in our gravels, chalks, and loams, where it is firſt ſowed by the hand out of the ſeed-cot, and harrowed in with barley, but will not ſo well anſwer in wettiſh ſoils, as the pigeons and ſome other dungs will, becauſe this is not of ſo hot a nature as they are; yet as this creature,

creature, like the ſheep, can live without water, its dung and ſtale is more hot and ſaline than many other of the four-footed ſort are, that renders it of exquiſite ſervice both in arable, and graſs grounds, if laid on either of them early enough, as at *Chriſtmas* or *Candlemas*, that the ſun and air may not dry and exhauſt it, before its fertile ſalts are communicated to the roots of the corn, graſs, or trees; likewiſe for the encreaſe of turnips this is of vaſt ſervice, if thirty buſhels are harrowed into the ground with the ſeed. It has often moved my regret, to think of the great quantities of this, as well as ſeveral other rich dreſſings, that are carried to the *London* layſtalls, and there conſumed to little purpoſe; for it is certainly worth our while to pay very well for this tame rabbits-dung there, and bring it thirty miles into the country afterwards.

CHAP. XXIII.

OF DOGS-DUNG.

A Farmer enjoyed great crops by incloſing a piece of ground with moveable hurdles, and dreſſing the ſame with dogs-dung, which is accounted the next beſt dreſſing to pigeons-dung; he breaks ſetting-dogs, and is a game-keeper, he keeps ſuch a number of theſe animals, as return

him a conſiderable quantity of this dung every year, which enables him to ſow horſe-beans, wheat, barley, and peaſe alternately: and this year, 1741, he had one of the beſt crops of wheat that ſucceeded his laſt year's bean crop. And what was very particular, when moſt bean crops miſſed throughout the nation in 1740, he had a moſt plentiful one on this dry gravelly ſoil, and which I was an eye-witneſs of. And thus I know a gentleman, who keeps a large pack of hounds, have the greateſt crops of grain wherever he ſpreads their dung.

Dogs-dung is often experienced and found to be the moſt fertile dreſſing of all the quadruped ſorts, as is alſo beſt known to thoſe gentlemen who keep a kennel of hounds, and employ their dung in ploughed lands. At *Dagnal* in *Bedfordſhire*, there lives a publican who is game-keeper to a gentleman, which obliges him to keep a number of ſetting-dogs and ſpaniels, that return him a conſiderable quantity of dung, in a year; and, as this man is owner of a ſingle acre of land near his houſe, he dreſſes it with his dogs-dung every year, which helps him to ſuch crops of wheat, barley, beans, and peaſe, as excel thoſe of the neighbouring farmers, and theſe on a gravelly ſoil. But, what is moſt to be admired, this man gets, by the richneſs of his dogs-dung, crops of corn every year, without the interval of

a fallow

a fallow one, though he ſows his ſeed in the promiſcuous, old, *Virgilian* way; and, in the dry and exceſſive cold ſpring of 1740, when moſt crops of beans ſuffered by it, this man's crop looked freſh, and went on ſo well, that at harveſt, he had the beſt of crops, as I and many more beheld with admiration.

CHAP. XXIV.

OF HUMAN ORDURE.

FOR want of knowing how to manage this hot dreſſing, it has diſcouraged many from uſing it, on this account therefore, I ſhall here make known a gentleman's method in the improvement of it. He had his houſe-of-office emptied, and the ſoil carried into a hovel-place, to remain under cover in a heap, which as ſoon as done, he had it all covered with mould, where it lay ſome time, till the dung got dry. Then he got more mould, and chalk, or lime, and had it mixed all together with the ſhovel, and let it lie ſome time, when he had it turned and mixed again, and, by this, he got it into a dry and almoſt powdered body, fit to ſow out of a ſeed-cot; and accordingly he had it ſowed over his wheat in the month of *January*, by a man's hand as we do ſoot out of a ſeed-cot, and it produced wonderful

wonderful crops. When cured after this example, it is one of the beſt of dreſſings, both for corn, as well as graſs-ground.

CHAP. XXV.

OF LIME.

THE ſalts of limeſtone were fixed in the crude ſtone or chalk, and unable to act in the growth of vegetables; but being made free, and ſet at liberty by calcination, they act; for till the acid barren quality of ſtones or other minerals is evaporated by fire, the ſalts are of little or no ſignification to land; and ſo of chalks and other earths, unleſs they are cured by fire, fermentation or putrefaction, they are not capable of benefiting the ground, grain or graſs they are laid amongſt, becauſe no hard denſe bodies can mix with, and aſſiſt the earth, as the more looſe and powdered ones do, nor can their worſe ſterile earthy parts, that lie concealed in their original priſtine ſtate, be of ſervice, till they are converted into a contrary nature, which makes this dry burning lime not only abſorb and conſume the wets, and moiſture of grounds that are often fatal in the winter and ſpring to the wheat, rye, and graſs, but alſo kills, wounds and drives away

away worms, ſnails, grubs, and caterpillars; lime therefore is uſed many ways in farming. Firſt, by mixing it with turf, dung or mould, and ſuffered to lie till they are rotted and incorporated together, which will make an excellent dreſſing for corn or graſs-ground. Secondly, forty buſhels of ſtone-lime ſhould be ſlaked in one heap in the field by the weather, which it will do in a few days, and then ſowed over an acre out of a ſeed-cot as thin as it can well be; this may thus remain for a week, when the wheat may be harrowed in broad lands, or ſowed in ſtitches: others will fetch water directly and ſlake the lime as ſoon as it is in the field, and ſow it while it is hot, that it may bring the ground into a ferment. Thirdly, it muſt be in like manner and quantity ſowed over the ground with turnip ſeed; the lime is firſt to be harrowed in twice in a place, and then the turnip ſeed once in a place with light harrows. Fourthly, On a clover lay, forty buſhels may be harrowed in while it is hot, and let lain a week or fortnight, then harrow in the wheat; this will deliver the grain from the deſtructive worm and other inſects, that often here deſtroy the wheat, and will alſo cauſe it to gather thicker, and maintain itſelf in the cold wet times of the winter and ſpring, when others ſicken or die; and therefore I am ſurprized to find a late author ſay, that

lime

lime is moſt natural for light, ſandy, hot, gravelly grounds, and bad for wet, cold gravels, but worſt of all for cold clays.

The practice of manuring, dreſſing, and ploughing many of their open common field lands, lying here, I am going to ſhew, becauſe, though their ground is ſituated as low as thoſe in *Ayleſbury Vale*, yet there is a conſiderable difference in their management. Many of theſe farmers may be called good huſbandmen, and it concerns them to be ſo, as they pay ſeven ſhillings and ſixpence an acre for their arable ground, that lies in ridges and furrows, and like thoſe in *Ayleſbury Vale* is never ploughed a-croſs; but then they enjoy ſome of the beſt of ground, for there is hardly any exceeds it for producing large crops of wheat, barley, and peas, &c. as being for the moſt part red, clayey and gravelly loams, which lie in rood and half-acre lands, that they dreſs and manure with dung, with the fold, and with lime, &c. for a wheat crop, with rotten dung; and then they plough it in at the firſt ſtirree-time, and ſeldom or never juſt before the laſt ploughing, becauſe here their ſoils are very apt to breed ſmutty wheat; others mix highway dirt or other rubbiſh with their dung, and, after it is well prepared, lay it on their wheat land. A certain gentleman, in this country, was ſo curious a huſband-

huſbandman, as to collect ant-hills, tanners-bark after its being made uſe of and done with by the tanner, and privy-dung, and with his ſtable dung made a compoſt, which he would let lie in a great heap, or dunghill, ſome time, till he had it turned; and this he did twice or thrice till he had kept it a year or more, and made it all ſo fine, that it would paſs through the large wired ſcreen; when it was thus got ready, he applied ſome of it to his garden uſe, and ſome to the field uſe; if to the latter, it was carried in a cart, and, when on the ſpot of ground, they threw it out, by ſpreading it over the land with a ſhovel, and then ſowed and ploughed in the grain. As to the fold, there are hardly any but great farmers that employ one, and that a little one, becauſe this being a flattiſh, wettiſh, open field country, the ſheep here are very ſubject to the rot; and, therefore, if a farmer has not the conveniency of ſhifting them in meadow ground, or on ploughed lands that lie dry (which few ſmall farmers have) the loſs may be more than the profit. There were very few ſheep killed by the butcher in the dry year of 1742, but what had been formerly touched with the rot, as appeared by their hard cory liver; elſe this field-dreſſing would be of excellent uſe here, as agreeing very well with their ſort of ſoil. But their lime

lime is uſed in general, and anſwers exceeding well on their gravelly loams and gravelly clays; contrary to thoſe ridge, loamy, clayey lands in *Ayleſbury Vale*, which being of a ſtiffer nature, and lying higher, do not ſuit this ſort of dreſſing, nor did I ever ſee any make uſe of lime in this vale; although a great deal may be ſaid on account of prejudice, which not a little governs the countryman, as is obvious by the non-uſe of lime, in the large open fields of *Pitſtone*, near *Ivinghoe*, where they have hundreds of acres of gravelly, loamy land, that would rightly agree with the lime improvement, and yet pay no regard to the great opportunity they may enjoy of making lime at a cheap rate, becauſe under all their ſurface, they have a chalky bottom: but, inſtead of lime, they go ſometimes ten or more miles, to buy and fetch rags home at a much dearer rate. But this vale-farmer is wiſer for liming his land; and I muſt here obſerve, that in *July*, or *Auguſt*, they take care to lay on the juſt quantity of two quarters and a half upon each half acre ridge-land, in little heaps, over the whole land, to lie and ſlake, till all is ready to be ſpread, and then to be ploughed in at the ſecond ſtirree-time. Others lay a whole waggon-load of lime, which is five quarters, in one heap, on a land, to lie a month or more, to ſlake and crumble by the weather,

and

and, when ready, they carry it in a little low cart, and by a ſhovel take it out and ſpread it over two half acre lands, which after having been ploughed in twice or more, they ſow and plough in their wheat-ſeed, and then they ridge up their land, contrary to the *Vale* of *Ayleſbury* practice, for here they always caſt down their land at ſowing time. Some of theſe farmers will alſo lime and dung their land the ſame year, which, being a double dreſſing, generally returns them prodigious crops of wheat and *Lent* grain.

CHAP. XXVI.

OF HOOFS.

HOOFS, of oxen or cows eſpecially, inſtead of cutting them to pieces and ploughing them into the ground, we force them into the earth with ſticks, preſently after the wheat, barley or rye is ſown, at about ſix inches or a foot diſtance, in order to prevent dogs, &c. carrying them away; here they lie almoſt ſmothered, ready to receive and lodge the rains, which will cauſe them to rot, putrify and mellow the ground, ſo that by reaſon of the dirt about them, their faſt lying in the ground, and the nauſeous taſte and ſcent,

they lie ſafe from dog, fox, badger, wild and pole-cats, weaſels, ranes and ſtoats, and is a dreſſing for ſix years, to chalks, gravels, and loams, where they will prove ſo many little watering-pots, or receptacles, to ſuch dry grounds, and exceedingly nouriſh them.

CHAP. XXVII.

OF HOGS HAIR.

HOGS hair and coney clippings are very good dreſſings for the light ſoils harrowed in with wheat, rye or barley; ſo are oil cakes of rape-ſeed, &c. that are now uſed much about *Luton* in *Bedfordſhire*, which they chop ſmall or grind, and plough or harrow in, to a great profit. Theſe are moſt of them general manures, and uſed more than ever, inſomuch that I know four farmers, neighbours, that have equally contributed to the purchaſe of twenty twelve-buſhel ſacks.

CHAP. XXVIII.

OF BUCK WHEAT.

IT is the opinion of ſome, that it does moſt good in clays and clung grounds to hollow them; others ſay, that it is beſt uſed in dry, binding gravels

gravels or ſands, to keep the one looſe, and the other moiſt; but in ſome of the ſandy lands about *Godalmin*, they dare not ſow it, leſt it make the earth too light for common wheat; yet in heavy ſands, ſandy loams, gravels, and ſuch ſort of light grounds, it is certainly beſt ſown, either to plough as a dreſſing, or for ſeed. In chalks it is improper, becauſe it looſens them too much. In ſtiff and wet lands, it is apt to rot both in root and ear, as being itſelf a very ſucculent plant, and of a tender, cold nature, being eaſily hurt by ſome winds, lightning, and froſts; and therefore warm light ſoils ſuit it beſt, and, in all, it is a very great killer of weeds, where it grows thick, as it commonly does in tilths, though you ſow but one buſhel on an acre, and is found by many to anſwer that great end, which all farmers endeavour after; namely, to reap a great advantage for a little charge. I am the firſt that have ſown it in our parts for a dreſſing, though it has been ſown in *Norfolk*, *Suffolk*, *Surry*, *Kent*, and *Berkſhire*, many years, and is now more and more propagated. As I live twenty-ſeven miles from *London*, it is a great expence to have manure from thence; for ſometimes ſoot is one ſhilling a buſhel, ſo that twenty-five ſhillings is the charge of dreſſing a ſingle acre well, when two ſhillings and ſixpence will do in *French* wheat, and yet

this will kill weeds when ſoot will nouriſh ſome; the wheat dreſſing will laſt three years *, when the ſoot will laſt but two; the one is alſo more certain than the other, for in dry ſeaſons, the ſoot by its ſulphureous quality will burn up a crop of wheat or barley to a great degree, when the *French* wheat will remain a ſure and certain promoter of vegetation, by its moiſt, hollow, fertiliſing nature: again, ſoot, when it is laid to the quantity of twenty-five buſhels on an acre, forces ſo vehemently either graſs or corn, that, after two years, it leaves a poverty behind it, which this is ſo far from doing, that it is almoſt a dreſſing the third year, provided it be a full crop at firſt, and ploughed in at full bloom, when the ſtalks are fulleſt of ſap.

This grain has returned four or five quarters of ſeed from one acre, which is excellent for feeding hogs and poultry. In blooming time, when this is to be ploughed in, it is very ſerviceable for ſubſiſting cattle in a little while, who will tread it down, and make it the fitter for this purpoſe. You, that dreſs your land by ſheep, may fold them in another ground, while this is provided for, and that without any riſque of your cattle's breaking out, into your neighbour's

* This aſſertion of Mr. Ellis's, is to be doubted.

fields, for here is meat in plenty. So, when your teams are all buſy, in ſome ground there needs but one ploughing, to harrow your common wheat in, on this *French* wheat.

This good piece of huſbandry may be performed to make it anſwer very profitable ends on ſeveral accounts: one whereof take as follows, viz. In *Norfolk* I ſaw this done, the latter end of *Auguſt*, where, when a crop of *French* wheat was juſt in bloom, they with one foot-plough ploughed it in; and, with another, that directly followed, they turned up a ſandy mould on the firſt layer, and made the whole field appear in one even ſurface of ſuch fine earth. On this they forthwith ſowed two buſhels of rye on every acre, and harrowed it in. The ſame might be done with common natural wheat, if the ſoil is proper for it, and many plough in *French* or buck-wheat for the ſame purpoſe of nouriſhing a common wheat-crop.

CHAP. XXIX.

OF OLD THATCH.

THIS ſort of dreſſing is now found to be of good ſervice, when put over ſward, or natural graſs land. In *Billingter* large common field meadow, lying near *Leighton* in *Bedfordſhire*,

he that has ſaved his old thatch, will be ſure to lay it on that part of the ground belonging to him, as ſoon as his graſs is mown off, and expect it to do him great ſervice, by ſhading the roots, and preventing cows, horſes, and ſheep, biting down the after-meath, or graſs too near the roots, which, when the latter ſort in particular do, it commonly affects the next year's crop, to the great leſſening of it: whereas when they lay on a good quantity of old thatch, they ſeldom fail of a conſiderable crop the ſucceeding ſeaſon, for, by this means, they have mowed nine loads off four acres, at one mowing-time, in this open common field. To this account, I add, that thatch very much hollows the ground by its cover, and by the worms pulling it in; and thus it lets the dews and rains have the freer acceſs to the roots of the graſs, to its great improvement.

CHAP. XXX.

OF THE COMPARATIVE QUANTITIES.

BESIDES the dung and urine that the cattle leave in the turnip-ground, and after the ſeed is ſown, ſhort rotten dung ſhould be immediately ſpread all over it to the quantity of fifteen cart

cart loads on each acre, at leaſt; or twenty buſhels of ſoot ſown over the ſame by the hand broad-caſt, or three or better four cart loads of clay, or wood-aſhes, that will contain in all about one hundred and twenty buſhels, reckoning thirty buſhels to each cart load, to be ſown out of a ſeed-cot broad-caſt over one acre of ſuch new ſown wheat ſeed: or ſeventy buſhels of coal-aſhes, or twelve buſhels of peat-aſhes, if they are made from the beſt, black ſtrong moor-peat; or twenty (or rather leſs) buſhels of oil-cake powder, or forty or fifty buſhels of malt-duſt; one of which powdered manures is to be ſown by the hand out of the ſeed cot, as ſoon as poſſible after the wheat-ſeed is ſown, for the rains to waſh in upon the corn; to force on ſuch a ſpeedy growth, ſow forty or ſixty buſhels of ſlaked lime over the acre of ſeed, or twenty buſhels of ſoot, or ſixty buſhels of coal or wood aſhes.

As ſoon as young coleworts appear above ground, ſow over every acre twelve buſhels of peat aſhes, or forty of coal aſhes, or ſixty of wood aſhes, or twenty of ſoot.

CHAP. XXXI.

OF MANURING MEADOWS.

IN *May*, be increaſing your dunghills, in order to get them rotten and fine againſt the time

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you get your field cleared of the firſt and ſecond crops of graſs; ſome lay it on after the firſt to increaſe the ſecond; others not till *October*, when it is fed bare: this ſort of dunghill requires to be turned often, mixed well, and rotted to the higheſt perfection of fineneſs; for the ſmaller its parts are, the better and ſooner it mixes with the ſmall roots of the graſs, and thereby brings on an early cover, and that an early mowing, once if not twice in a ſummer, and then great burthens, as is annually proved by the *Edgware* and *Hendon* men in particular, who certainly are the moſt curious managers of a dunghill in this nation, and yet are at a conſiderable charge all the ſummer, to bring their *London* lay-ſtall, muck, and dung, and coal-aſhes, three, ſeven, and ten miles on the wheels, which they moſt carefully mix with highway dirt, mould, and ſometimes chalk, and incorporate them ſo often till they attain a moſt exquiſite fineneſs againſt their ſpreading ſeaſons.

CHAP. XXXII.

OF THE VARIATION OF MANURES.

THIS is abſolutely neceſſary in both meadow and arable grounds; for in the firſt

it

it has been proved, that by ſowing aſhes ſome years together, they have lain at the roots, violently drawed the goodneſs out of the ground, and in time ſo choaked the plants, that they produced but very thin crops of hay. So horſe-dung, for the ſame reaſon, may be annually applied, till the ground will bear no graſs. Arable land will alſo complain, if too frequently dreſſed with one ſort of manure. As for example, if ſoot or lime is uſed each on two or three crops together, the conſequence will be thin returns of grain; a judicious farmer therefore always takes care to change his dreſſings as often as he can; hence it is that many are ſo curious to mix earth, lime, and dung together, as beſt agreeing in the dung-hill, and on the ground afterwards. Again, the nature of manures is to be conſidered for their alternate application. Soot, lime, and aſhes generally produce a ſhort thick graſs; dung or fold, long graſs; for which reaſons, dung or fold ſhould follow ſoot, aſhes, or lime, and ſo on; likewiſe where graſs on downs, or other dry bottoms, is naturally ſhort, cart-dung or the fold ſhould be made uſe of, before the burning ſort. A gentleman that keeps twelve hundred ſheep lays ſo a great ſtreſs on this piece of huſbandry, that he hopes, by this means, to have ſheep worth ſixteen or eighteen ſhilling a head, inſtead of a ſmaller ſort of eight or ten ſhillings value, which

he

he uſed to have; and that by employing his fold on ſuch ſhort graſs, and feeding his ſheep in the winter with pea or other ſtraw out of racks; for either hay or ſtraw, conſumed in this manner, warms the roots of the graſs, keeps off chills, prevents the growth of moſs, and, by the worms drawing it into the ground, becomes a ſort of under dreſſing, beſides the improvement of the dung, ſtale, and heat of the ſheeps woolly bodies.

But above all other management, there is an abſolute neceſſity for making uſe of theſe dreſſings alternately, that is, not only to dreſs the grain, graſs, and ſoil with a manure, but to alter theſe ſupplies each ſeaſon; for if I dreſs my wheat crop this time with ſtable-dung, the next time it ſhould be with ſoot, and the third time with the fold, horn-ſhavings, hogs-hair, hoofs, or ſome other change, and ſo for any other grain, &c. elſe it may be depended on, the earth and grain will be ſaturated, and tired with the repetition of one and the ſame ſort, which is often the cauſe of thin crops, and to my knowledge but lightly regarded by ſome ignorant huſbandmen; though to my ſatisfaction I muſt own this profitable notion of late has obtained a probation with many that formerly cavilled with a uſeful tenet meerly for its being new; for undoubtedly different dreſſings impregnate the ground with different ſalts and ſulphurs, which oblige the roots

of

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of all vegetables that grow therein, to draw their food each time in a various manner.

CHAP. XXXIII.

OF THE IMPORTANCE OF MANURING.

TWO farmers have got eſtates out of a poor hungry, gravelly, chalky, earth.—They live at this time in *Ivinghoe* pariſh, which is ſo large as to extend its bounds into the very low vale of *Ayleſbury*, and into the very high *Chiltern* country. It is in this laſt that two farmers live, who rent about ſeventy pounds a year apiece; one whereof is a quaker, and both live ſo cloſe to each other, that ſome of their lands join; and they go on after one way of farming to very great profit, for each of them keeps about three hundred ſheep to fold on their poor gravelly, and chalky grounds, which they are enabled to do by the help of *Ivinghoe* common and their own incloſed fields. But this is not all by a great deal, for theſe knowing farmers carry their good management much farther, being of opinion that by laying out the value of a ſingle dreſſing, they get the value of a treble one. To explain this will be very eaſy, when I make known their expence in buying large quantities

of

of *London* ſoot every year, beſides other dreſſings; for as their farms lie thirty miles diſtant from *London*, every buſhel of ſoot coſts more than three-pence carriage, which, with ſix-pence a buſhel for the neat ſoot (provided it is bought in ſummer againſt the next ſpring) coſts nine-pence in all; but by the worſe manager it is bought in *January*, *February* and *March*, for eleven and twelve-pence a buſhel, carriage included, though it is delivered at *Hempſtead*, two and twenty miles from *London*, from whence they fetch it in their waggons or carts after they have, the ſame day, delivered their corn to be ſold at this great market; ſo that notwithſtanding this back carriage of their ſoot, perhaps eight or ten miles by the farmer's own team, and paying eight-pence a ſcore as we call it, that is, for ſowing twenty buſhels of it over each acre, they think it well worth their while to buy and ſow it on ſome of their ſeveral ſorts of ground every year; which, with their folding, cauſes their crops of wheat and barley to rally in the cold pinching ſpring ſeaſon, when other crops are declining inſtead of flouriſhing, that go without ſuch a beneficial warm aſſiſtance. But this is not all; theſe farmers buy rags, horn-ſhavings, hooves, cows and hogs-hair, &c. and apply one of them to their hungry gravelly ground, which proſpers moſt of all under the help of theſe tena-

cious,

cious, durable, and tough dreſſings; for, as a gravelly ſoil is compoſed in a great meaſure of pebbles, and very ſmall ſtones, it proves a ſort of ſtrainer or drainer, to powdered or other thin dreſſings, which are ſoon diſſolved or carried down below the roots of the corn, by the repeated waſhings of great rains, unleſs they join the fold or other dreſſing to them. In ſhort, theſe two farmers have got good eſtates, meerly by their well managing a ſeventy pounds a year farm each; for, in ſuch poor ſoils, a penny kept back from being laid out in dreſſing, is two-pence or three-pence loſt. This plainly proves the abſurd, obſtinate old farmer, to be notoriouſly wrong in the management of his gravelly farm, becauſe by not dreſſing his wheat and barley crops ſufficiently, his after *Lent* crops are ſeldom worth more than twenty or thirty ſhillings an acre, and ſometimes not that; he, therefore, ſince his farm is about the bigneſs of theirs, ſhould buy every year, like them, ſix hundred buſhels of *London* ſoot, beſides other dreſſings, to be a compleat manager of ſuch a hungry farm; and then neither he nor any other who does the ſame, will ever come under that great loſs which befel a young farmer, about the year 1736, at *Buttermere* in *Wiltſhire*, ten miles diſtant from *Newbury* in *Berkſhire*, who, being juſt married, laid out moſt

moſt of his wife's fortune in ſtocking a large chalky farm, but neglected very much the dreſſing part; inſomuch, that after ſowing forty acres with oats in one ſpring-ſeaſon, he had ſuch a poor crop in return, that he thought them not worth mowing; and, therefore, turned all his horſes into them to feed, as on ſo much graſs. The conſequence was, that he broke, I think, the ſame year, as I was informed on the ſpot the year following, when the landlord of the ſame farm was obliged to take it into his own hands. This particular caſe, as well as the conſideration of ſeveral others, leads me to praiſe the moſt excellent method of purchaſing dreſſings from *London*.

This alſo declares the folly of thoſe who hire farms, and, at the ſame time, are incapable to give the land its due manuring; however, whether it is want of knowledge, a willing mind, or ability, the deficiency will ſurely be a loſs to the occupier; accordingly, I have known able perſons run out conſiderable ſums of money in farming, for want of a right notion of the value of manures and dreſſings. Others begin at the wrong end of farming, and allow themſelves in great expences, to erect needleſs new buildings or adorn old ones; make large gardens, fiſh-ponds, viſto's, &c. at the ſame time neglecting the improvement of their land, that ought to be

firſt

firſt remembered to be duly aſſiſted with proper manure; that would by them produce, and become a ſort of fund to anſwer a number of contingent charges.

Soot we ſhoot down in our fields in a round pecked heap, againſt next ſpring, when we ſow it over our wheat; and which, in the mean time, by being hurdled round, and a little ſtraw laid on its top, will keep free from damage of all weathers. The trotters, hooves, and horn-ſhavings may be ploughed in at the firſt ſtirree-time in this month, and anſwer extremely well for ſeveral years after. But the rags, hair, and leather-ſhavings ſhould be ploughed in at wheat ſowing-time, as the aſhes are to be ſown out of the hand on wheat, clover, ſainfoine, and natural graſs, in *December*. Now all theſe, and more, we *Hertfordſhire* farmers make uſe of, as we are an inland county and abound with many ſorts of ſoils; and I believe I may aſſuredly vouch it, that he who rents from fifty to a hundred, or more, pounds a year, and does not make uſe of ſome of theſe manures and dreſſings for his meadow or ploughed grounds, cannot get money in any conſiderable degree, notwithſtanding the conveniency of commons for his ſheep, and other home advantages. For a proof, in a great degree, of this, there are three farms within two miles of my houſe that join together, and rented

by

by three ſeveral tenants, called *Wards*, whoſe ſoils are loams, chalks, and gravels; I ſay, here they often lay out the value of an ordinary crop in *London* manures, before they can obtain a good one. Indeed, when a very dry ſpring and ſummer happen, they are liable to loſe money inſtead of getting it, by the burning quality of theſe dreſſings; but when they are attended with ſufficient moiſture, they commonly have double crops to what their neighbours have, who made uſe of none of theſe auxiliary helps; for though the former are ſubject to ſome fatal incidents, by weather and inſects, yet it is well known that no farmers in our parts get more money, in proportion to their farms, than theſe do, notwithſtanding their lands are of the poorer ſorts.

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BOOK III.

OF TILLAGE.

CHAPTER I.

OF PLOUGHING.

IN vale ploughing, ridging up is done by beginning in the middle of a half land, or half acre (in which faſhion moſt of their vale grounds lie, for the greater convenience of carrying off the water) with the foot plough, which, the firſt time of fallowing, fills in the great middle thorough that was left when the laſt grain was ſowed thereon, by drawing the plough up and down each ſide of the middle of the land, till the half acre is all ploughed. In this mode all their ground is ploughed till they ſow their grain, and then they alter.

Caſting down is only done the laſt time when they ſow their ſeed, by beginning at each outſide of the half acre, and ploughing every tho-

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rough down, till they come to the middle, when they leave a large thorough, wide enough for a ſingle horſe to go along without offending the corn, if it is not too high.

For wheat they begin to plough or fallow up the bean ſtubble in *April* for the firſt time, and harrow it down before they plough it again, which is all the harrowing they give their wheat land; then about *Midſummer* they plough it again, and let it lie till the middle of *September*, when they plough and ſow the laſt time for good; but the more induſtrious man will give his wheat land a fallow in *April*, and two ſtirrees between that and ſowing time, ſo that in all there will be four ploughings. Now the fallow ploughing is performed by ridging up, and ſo is all the two ſtirrees after the ſame faſhion; but the laſt ploughing is done by caſting down the land, ſo that they harrow but once, and that is after the firſt ploughing; and at laſt they leave a large thorough in the middle, unleſs it be in a very low wet piece of ground, which ſome always ridge up, the better to keep it dry.

For barley they plough the bean ſtubble four or five times in all. The firſt ploughing is begun in *April*, for they ſay, *Better an* April *ſop, than a* May *clot*, which often makes the ſluggard put forward to get his ground ploughed in that month; then they harrow it before they plough it

it a ſecond time, which is about *Midſummer*; and at *Alhollontide* they plough it a third time, and let it lie till *March*, when they plough and ſow for good. Here then is one fallow and two ſtirrees, that are done by ridging up, and the fourth time by caſting down and ſowing; ſome of the beſt ſort will give it a fallow, and three ſtirrees before they ſow it.

For beans they give the wheat or barley ſtubble only one ploughing, by caſting down the land, and harrow after ſowing, which ſome do preſently, others not till the beans appear; this is uſually done at *Candlemas*, according to the rhyming proverb, *At* Candlemas *day, it is time to ſow beans in the clay.*

Peas are done after the ſame manner, but ſomething later.

Chiltern ploughing.

The chiltern farmer's condition varies much from him in the vale, and particularly as to his ploughs; for as the vale man uſes but one ſort, the chiltern-man is obliged to occupy no leſs than three ſeveral ſorts; and they are the fallow-plough, pea-ſtitch, or ſcent-ſeed plough, and wheat-ſeed plough, beſides the neceſſary occaſion there is ſometimes for the foot plough, the *Kentiſh* broad-board plough, the creeper, and the ſwing plough.

At *Carrington*, near *Dunſtable*, on their high clay ground, they ſow all they can in ſtitches to keep the corn dry, for in theſe the roots are more expoſed to the ſun and air; ſo in gravels and chalks, they more frequently than formerly run upon the ſtitch, becauſe, in all ſoils, it ſaves the rains and dreſſings better than the broad-land; for as the rains fall on the ſtitch, it waſhes from the upper part downward, by which the goodneſs gradually deſcends on the ſides and lower parts, till it comes into the gutter between the ſtitches, and there meets with the bottom root: and of ſtitches, the leſſer one is accounted beſt in the clays and loams, becauſe it lies more ſharp and open, for the reception of thoſe benefits that the kind ſeaſons afford. This way has got into ſuch eſteem at that place and *Kenſworth*, that ſeveral there ſow their oats in ſtitches, by firſt bouting up the land in *November*, and in *February* or *March* they ſow their oats in four thorough ſtitches, by a man's following the plough and ſtraining them into the thoroughs. But in gravels and chalks their ſtitches are ſomething broader than in the clays and loams, as being drier ſoils, and are commonly made at the rate of eleven to two poles length, which, and other ploughings, I ſhall deſcribe as follows, viz.

Broad-land ploughing is what is oftenеſt done both in vale and chiltern of any other, and is com-

commonly the firſt operation that is performed on a ſtubble of corn or lay of graſs, with either the fallow or foot-plough's being drawn as cloſe as can be on the ground, and turning the land thorough by thorough into a flat even ſhape and form. This method being eaſieſt for the horſes, at the firſt breaking up of the ground, commonly precedes and makes way for that of bouting, four thoroughing, and hacking, &c. and is called clean ploughing.

Bouting, or bouting up, is a half ploughing of the ground, by making a ſingle ſtitch either from off broad-lands or wheat ſtitches; it is done as the firſt fallow about *Alhollontide*, to prepare wheat ſtitches for ſowing of barley or peas, by making one thorough, which raiſes a ſmall ridge of earth; then, at near a foot diſtance, another in like manner; both theſe together become one ridge or bout, and is very proper for giving the froſt an opportunity to kill the weeds, and ſweeten the ground. Next time is the middle of *February*, when they bout it down, and harrow it plain croſs-wiſe, where it lies perhaps a fortnight, dunging it all over; then they plough it into broad-lands and harrow in barley. This bouting is alſo done by ploughing two thoroughs off a barley ſtubble at *Alhollontide*, within a foot of each other, that makes a ridge or bout to prepare the ground for peas, which is to lie till

the middle of *February*, when the bout is to be harrowed down; and at the beginning of *March* they plough it the ſame way as it lay before, into four-thoroughs, which they ſow by ſtraining in the peas, and harrow it directly down. Bouting is alſo performed in ſummer, by firſt ploughing the oat ſtubble into broad-lands, in the month of *April*, which is called fallowing them in *June*; that muſt be harrowed plain, and ploughed into bouts that may lie till a month after, when it is to be ploughed up again, which will clean plough that ground that was not broke the laſt time, by running the plough this time backward and forward through the middle of the ridge or bout, this will raiſe another ridge that will lie directly upon that which was a thorough before; then a fortnight or month before the ground is ſowed, it may be either back-bouted or thoroughed down, and harrowed acroſs directly, when it is in right order to ſow wheat in ſtitches.

Bouting down is done by making a ſhallow thorough on each ſide of the ridge of the bout, whereby a ſleeving, or a narrow thin ridge remains in the middle; this is done on purpoſe for the harrows to pull down, as they are drawn acroſs the land to level the ground, by preparing it for the laſt ploughing and ſowing of wheat. This is alſo called back-bouting.

Thoroughing down is a work ſometimes done inſtead

inſtead of bouting-down, or back-bouting, by drawing the wheel fallow plough only once deeply through the very ridge of a bout or ſtitch, and laying it in order for the harrows, that will, by drawing them acroſs, level the ground ready for ploughing and ſowing of wheat; and it is performed as well as the bouting-down according as the earth requires; for if it is very fine and looſe, then thoroughing down, as it is leſs trouble, will be ſufficient; but if it is not in quite good order, then back-bouting is the more neceſſary, by reaſon it fines the ground ſomething more.

Four-thorough is performed by the wheel fallow plough, when the ground has been the time before fallowed into broad-lands, and harrowed plain; this then is inſtead of a ſtirree, and will ſweeten the ground to an admirable degree in the ſummer againſt the wheat ſeaſon, which ſome harrow, and ſome do not, before the next ploughing, and that is bouting up theſe ſtitches, which is the third ploughing; the fourth is thoroughing down, and harrowing plain; then it is ready for ſowing wheat in theſe four-thorough ſtitches, with the wheat-ſeed wheel plough. This is not quite clean ploughing, yet is reckoned the very next to it, becauſe this way brings the earth under an expeditious fineneſs and ſweetneſs, by reaſon it breaks and expoſes moſt part of it to the ſun and air, by its higher ſituation than

the broad-land; for by this mode the land is raiſed beyond its common level, and thereby can better diſcharge the ſugging wets that often, by their long lying on the clays and loams, ſour the land; this way is done by drawing the fallow plough backward and forward, till four-thoroughs are made almoſt cloſe together, which is a ſort of ridging up; beginning firſt with one of the uppermoſt thoroughs, then almoſt cloſe to that another thorough, whoſe earth will join that which came out of the firſt; then on each ſide of them another thorough muſt be made as before, which will compleat a four-thoroughed ſtitch. This is a ſomething more tedious operation than the broad-land, but generally ſufficiently pays for both time and trouble. The wheat ſtitch lies very *apropos* for this work, and is often at *Alhollontide* ploughed into four-thoroughs, that remain ſo till the next ſpring, when they harrow it down, and plough it again into the ſame four-thorough ſtitch, in which they ſtrain their peas, with the wheel-pea ſtitch-plough.

Hacking or combing may be called a clean ploughing; if the ground is fine when this is done, and the ploughman leaves not too great a kicker, for this way is commonly the laſt operation but one, juſt before they plough for good to ſow wheat, barley, and turnips: it is done on broad-lands by making a thorough with the fallow

low wheel plough, and making another ſo cloſe that it throws in that earth that firſt came out, and fills up the thorough again; then they ſometimes leave a ſmall bit of ground, which they call a kicker or ſleeving, and then make another thorough, and ſo proceed, by throwing that in again as they did the firſt. This way is a prodigious ſweetener of the ground, and tears it all to pieces with the help of the harrows that directly ſucceed this ploughing; then the next and laſt ploughing is done acroſs the land, which ſtill adds to the fineneſs of the tilth.

Theſe ſeveral different ways are of very great moment in getting ground into order for the reception of the ſeed, which is the main art of farming, elſe the weed and ſourneſs of the grounds are apt to become maſter; and as the farmer is obliged to keep ſeaſons in ploughings and ſowing, he hereby has an opportunity to get ground ſweet and clean by a ſkilful method in a confined time, which otherwiſe perhaps could not be done, as often is viſible in grounds of turnips that are eat off by *Alhollontide*, *Chriſtmas*, or *Candlemas*. Theſe times call for various managements; if at the firſt two, then the earth ſhould be bouted up and let lain till the middle of *February*, when it ſhould be back-bouted or thoroughed down, and harrowed level; then it is ready for the laſt ploughing into broad-lands, the

croſs

croſs way of the former, and fit for harrowing in of barley. But if at *Candlemas* the turnips are eaten off, then they often hack the land, and let it lie to ſweeten till the firſt of *March*, when they harrow it plain, and ſo let it remain till the middle of that month, and then they plough it acroſs and harrow in barley.

Others, again, at *Alhollontide* or *Chriſtmas*, will plough it into four-thorough ſtitches, which will much better ſweeten the land and kill the weeds, than broad-land ploughing; this they let lie till *Candlemas*, when they bout it up, and at the firſt of *March* back-bout it down, harrow it well, and is then ready to ſow a fortnight after by ploughing acroſs.

Theſe are certainly much the beſt ways if time will allow after the turnips are eaten of; for broad-land ploughing, in winter or ſpring eſpecially, has been the cauſe and ruin of ſome crops, it being only a turning the ground topſey-turvey; the twitch and weeds are not ſo ſoon killed as when the land is more laid open; for in this way, as I take it, the earth is but half expoſed, when bouting or hacking does it at leaſt three parts in four, and keeps the land dryer and more to the ſun and air.

But when the turnips are eaten off late, and opportunity won't admit of plurality of ploughings, then they give it but one ploughing in

broad-lands, and harrow in the barley or wheat, becauſe the ſheeps dung by a thin ploughing, lies juſt under the barley for it to root into, and have the ſudden benefit thereof; this is reckoned a ſurer way than two broad-land ploughings, by reaſon this being often a wet ſeaſon; the danger of a double ploughing is, that if it ſhould rain after the firſt ploughing, it will bake the earth down, and never be fine; but if a dry fine time follows, then it is better than one, and the firſt ploughing muſt be deeper than the ſecond to turn up again the ſheeps-dung.

A farmer was at plough in a ſnowy time, and having a great deal to do, would go on, and ploughed in ſnow as it fell: the conſequence was, that, as he was then ſowing peaſe, the *May*-weed came ſo thick up, afterwards, that there was no peaſe, only a thetch appeared here and there, that happened to be ſowed among the field peaſe: but this was the leſſer damage, for the ground was made ſo ſour by ploughing in the ſnow, that it did not come to itſelf, that is, the farmer did not get it into a fine ſweet tilth again till the ſeventh year. Another farmer would plough his ground while the ſnow lay on it, and came off in the ſame manner; for ſnow, when mixed with the earth by the plough, lies a conſiderable time in it before it is diſſolved, and in that time it becomes a ſort of

cement,

cement, and ſerves to make the ground cling together and increaſe its ſour quality, to the great damage of ſucceeding crops of grain. Beſides which, in caſe froſty and chilly wet weather happens for ſome time afterwards, the very next crop of peaſe, oats, or barley, will be certainly a very poor one; becauſe when the roots are chilled and ſtarved by cold, above and below, there remains little hopes of ſucceſs.

Next to ploughing ground in a ſnowy ſeaſon, doing the ſame in wet weather is likewiſe of pernicious conſequence to the farmer; for although it is not ſo bad altogether as the former, yet when a journey at plough is performed in a great rain, it will prove bad enough to him, becauſe all clays, ſtiff loams, and gravels, will be ſo bound and cloſed, that at the next ploughing the farmer may depend on finding his ground pretty well furniſhed with weeds, and ploughed up in blocks as we call it, that is, ſo clotty and rough, that it will be little or nothing the better for the firſt ploughing.

I am owner of an incloſed field, whoſe ſoil is a gravelly loam, that is ſo apt to run into a conſiſtence, like the batter of a pan-cake, in caſe a great rain falls in the time of ploughing it, or preſently after, that we are forced to take ſpecial care to put off ploughing it, when there is reaſon to ſuſpect a great rain would attend the operation;

tion: but, in looſe, ſhort, chalky ſoils, there is not that neceſſity for ſuch extraordinary care, becauſe theſe do not ſuffer damage like the others.

A man lived at *High-ſtreet Green*, in *Hertfordſhire*, and kept but two horſes in all for ploughing the little land he was owner of. Theſe being not able to draw the plough deep enough, to extirpate the roots of weeds, and to give the earth a fine looſe bottom for the roots of corn to enter eaſily; his ground ſeldom returned above half crops, which ſo impoveriſhed him, that he was forced to ſell ſome of his land: accordingly he ſold a field of eight acres, which after the buyer had ploughed it with a ſtrong team of horſes, and made the ſhare of the two-wheel fallow plough enter deep into the ground, it turned up ſuch a freſh parcel of earth, that he had forty buſhels of wheat from off one acre, the very firſt crop, that, when the whole was ſold, the ſum amounted to near the value of the land. Theſe are plain inſtances of the great advantages attending the true knowledge of ploughing ground in the right manner.

On the farm before mentioned, it was uſual for the former tenant to give ſtrict orders to his ploughman to plough an acre and a half at one journey, or in one day, before he came home; accordingly the ploughman did, but then he was

forced

forced to plough large thoroughs, with his wide ſet broad-board wheel fallow-plough, which every time turned almoſt ſixteen or eighteen inches wide of earth, and which, indeed, ſhould have been rather turned at twice, for then the ground would have been ſo broke, that weeds would have had leſs power to grow and increaſe. This miſmanagement broke the farmer, and had like to have done another near *Rickmanſworth*, but his eyes got open juſt in time; for, as ſoon as he was ſenſible of his error, he took in his fallow-plough narrower, and ſaved himſelf from that ruin which otherwiſe muſt have come upon him. For ſuch ploughing not only keeps the land ſour and hard, but gives weeds a foundation to breed, and grow luxuriant; becauſe, in ſour hard grounds, the roots of corn cannot ſtrike in their thready fine fibres, with that freedom and eaſe as are requiſite to maintain them in a thriving condition; and when corn is ſtunted, weeds will certainly grow predominant; and then follows the great charge of employing a number of weeders a long time, to the damage of the corn, and the impoveriſhing of the farmer. But the ſucceeding farmer, with his foot-pecked ſhare-plough, ploughed the ground (as I ſaid before) into very narrow thoroughs, by which he laid the land evener and better, than the firſt tenant did with his wheel fallow-plough; ſo that he ſowed his

his grain in a fine, looſe earth, that cauſed it to grow apace, and out-run the weeds, to his great advantage.

CHAP. II.

OF ROLLING.

THIS is an ancient *Virgilian* piece of huſbandry, moſt neceſſary to be performed in *April*, both on *Vale* and *Chiltern* corn-grounds, whether they be barley, peas, or beans, &c. for the ſeveral reaſons following. Firſt, to ſecure them from the deſtructive ſlug. Secondly, to prevent the damage of long and violent droughts. Thirdly, to nouriſh the corn-roots; and Fourthly, to make them ſtand faſt. Firſt, to ſecure a crop of corn from the ſlug. The ſlug, or naked ſnail, though a ſmall inſect, is the moſt miſchievous of all others to corn-crops, eſpecially to that of peas; for theſe are the moſt natural and moſt delicious food of all the field kind to them, and therefore they remain feeding on them longer than any other, for the ſlug attacks the peas from their infant growth till they are in pod; and it is on this account that a farmer, in the random way of ſowing peas, cannot be ſure of a full crop of them, till they are paſt the ſlug's power of hurting them; which keeps

keeps many farmers under a panic apprehenſion of the loſs of their pea-crops, or ſome part of them, by this ravenous inſect; for the rapine of this ſmall creature is committed chiefly in wet, warm weather, that frequently happens the month of *April*, which aſſiſts the ſlug not only in its vigorous feeding, but likewiſe in its breeding, by laying its ſmall eggs in little cells, under clots of earth; and when the weather is thus favourable to the breed of this ſlimy inſect, their increaſe in a ſmall field is infinite, and endures years together, if the ſeaſons are mild: that is to ſay, if a wet, warm ſummer and a mild winter ſucceed each other, then the ſlug remains in ſafety, and keeps his poſſeſſion till the next ſpring time, when he is ready for renewing his wonted rapine. But in caſe a very hard winter happens, then the farmer ſtands a hopeful chance of being delivered from thoſe his arch enemies, who, although they lie too deep for being deſtroyed by the tines of common harrows, yet a ſevere and long froſt will ſometimes penetrate into their beds, or cells, and there deſtroy both them and their eggs, as it happened to them in the winter 1739, and in the ſpring 1740, which was ſuch a hard and long froſt, that it rived, or ſplit, many oaken trees, or rather burſted them, by ſwelling their ſap into an icy ſubſtance, and at the ſame time, entered the earth ſo deep as to kill moſt of the ſnail or

ſlug

ſlug tribe, common worms, darrs, and canker-worms, inſomuch that our crops of corn have hardly ſuffered by them to this day. But when theſe inſects live in great numbers, in weather ſuitable to their nature, they become the greateſt field peſt of all living creatures, by annoying, and ſometimes ruining corn, turnips, artificial graſſes, and other vegetables, both in gardens and fields; and what very much chagrines the farmer is, that he cannot deſtroy them with all the art he is maſter of. Lime, indeed, will do a great deal towards it, but it will not fully anſwer his purpoſe; for, if to-day he ſows his lime over a young crop of peas, turnips, &c. perhaps the ſame night or next day, great part of its efficacy may be loſt by the fall of great rains: or, if a courſe of dry weather ſhould ſucceed, then very likely the lime will ſerve to burn up the infant ſprouting grain, as young turnips, clover, flax, wold, peas, and other green tender vegetables: and if he ſows ſoot inſtead of lime, or tobacco-duſt over them, he may chance to ſhare the ſame fate; and ſo of any other hot powdered manure. Wherefore, to prevent theſe deſtructive miſchiefs, as well as the farmer can, he makes uſe of the common wooden roll, eight feet long, fixed in a frame, and drawn by one or more horſes: the hindmoſt being faſtened in a pair of wooden ſhafts, for the more ſteady drawing, and turning it at

the land's end, and bringing it through narrow gate-ways, that lead from one field to another.

Here we roll the corn that lies in broad-lands, and in ridges, commonly twice in a place, to cruſh down and kill the ſlug; and, for doing this work the more effectually, a good huſbandman will begin to roll his ground at peep of day, for drawing the roll along the lands, while theſe inſects are in their high feeding; for, if he defers this work later in the morning, the ſlug (eſpecially if the weather is dry) will quit the ſurface, and creep into the lower earth for ſheltering themſelves, and lying ſafe from accidents. This caution, therefore, ought to be well regarded by all concerned in rolling of corn-crops, for one hour's time in the fore-part of the morning, is better than three afterwards, for killing ſlugs, by the preſſure of the heavy wooden roll. Secondly, the roll ought to be made uſe of to prevent the damage of long droughts, which may prove fatal to crops of corn, by drying and parching their roots, while they are in their infancy; becauſe then the ſun and air has free acceſs to them, and, being in their thready condition of growth, the heats may very eaſily enter, dry the earth about them, and do that miſchief, which, perhaps, can never be recovered. Now, to prevent this, a good farmer, in due time, will roll his horſe-beans, his thetches, his peas, his barley, or other crops,

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that generally want rolling in this month, by cruſhing down, and laying even, the clotty earth on the ſurface; which, though it did ſome good before, by breaking off the guſts of cold winds from the corn-roots, yet now becomes neceſſary to break them down, by the preſſure of the roll, for laying the ſurface level, for the operation of the ſcithe hereafter, and for ſhading and ſheltering them from the power of long and dry hot ſeaſons. Thirdly, by cruſhing down the clotty part of the ſurface with this wooden roll, and laying it even, the corn-roots receive a ſort of ſecond dreſſing; for, when the earth is thus ſqueezed about them, the rains will waſh out its ſaline quality on them, nouriſh them all the ſummer after, and by this means aſſiſt a ſcanty manure, that was laid over the crop at ſowing-time, and further increaſe the fertile effects of a rich one: as is obvious to all farmers, who practiſe the good huſbandry of uſing the roll in this manner; and more eſpecially ſo, if a dripping ſummer ſucceeds this profitable work, for then we ſeldom fail, by this means, to ſee our crops grow and flouriſh in large ſtalks, pods, and ears, that give us the greateſt hopes of enjoying a plentiful harveſt. The contrary effects of this management are eaſily perceived, when it ſo happens, that a farmer is put by his intention of rolling his corn in due time, as it now and

then happens to be his caſe, by the fall of heavy and long rains, that hinder his doing this work; for if he was to roll his corn in ſuch weather, the horſes feet would be apt to ſtolch, cruſh down, and bruiſe, or bury many of the corn-ſtalks, or blades, to the utter ſpoiling of ſome of them; therefore it muſt be dry weather, whenever this work is performed. But, if this happineſs is not to be enjoyed before the ſtalk and blade are got too old for the purpoſe, then the rolling-part had far better be let alone, and the farmer remain content to ſee the want of that he cannot have; which, very probably, will cauſe him the ſight of a languiſhing crop of corn. Fourthly and laſtly, by rolling corn, the clotty ſurface of the earth is ſo faſtened on, and about its roots, as to enable the ſtalks to ſtand erect, for receiving the benign benefits of the ſun, air, and rain, in perfection; for, when they grow in this poſture, the ſun and air have a free paſſage between their many upright ſtalks, that thus ſerve to ripen them with the greater expedition, becauſe the aerial, warm influences have room to harden them, and cauſe the ſtalks and ears to perform their regular and ſafe bloſſoming, and blooming, without which there can no right, full crops of corn be reaſonably expected; for, when the ſtalks of corn are, by heavy rains, ſtrong winds, and for want of rolling the ground, forced

forced to fall down, ſuch crops cannot enjoy a right bloſſoming, or blooming; and then, I am ſure, they cannot be well corned.

Again, there is this caution alſo to be obſerved in the rolling of corn; where barley, or other grain, has not been rolled before ſpindling time, in ſhould, by no means, be rolled then; for, if this was to be done, it may, perhaps, bring on the loſs of almoſt a whole crop of corn, becauſe, if its ſtalks are got ſo ſtrong as to grow upright in a tolerable height, and the roller be then drawn over them, it will conſequently ſqueeze them to that degree as to make them bleed, as we call it; that is, it will bruiſe them ſo as to force out part of their ſap; and then, as the green ſtalks loſe that vital part which ſhould nouriſh and carry on their growth, they muſt be ſtunted, if not killed. And although one would think this caſe needs no advice to caution againſt it, yet I have known ſome topping farmers commit this egregious miſtake, to their great damage, without perceiving their folly, till it was too late, and ſome not at all; for, being ignorant of the damage that ſuch late rolling may cauſe, when they ſee a barley-crop ſtunted, they are apt to impute it to a wrong cauſe, and not to the right one, of the late rolling of their corn in its ſpindling condition. I knew a yeoman, who was owner of a hundred a year, a fine farmer, that was brought up to

huſbandry buſineſs all his life, be guilty of this very miſtake; who went on committing it year after year, till at laſt he had ſo much damage done, by rolling his barley at an unſeaſonable growth, as opened his eyes, cauſed him to perceive his error, and become his own monitor, as well as to other farmers; for he frankly owned he had acted wrong in rolling his barley (in particular) too late, even when it had arrived to its ſpindling condition.

On chalky, ſandy and loamy grounds, we *Chiltern* farmers do not always employ the roll, when they are under a wheat-crop; it is ſeldom done, but when we apprehend ſuch grounds may ſuffer by froſts, wets, winds and heats: in this caſe, many do roll their wheat-crops, whether it is ſown in ridges, or in broad-lands, and this either in *October*, or *November*, or in *January*, *February*, or *March*; for the roll muſt never be employed, where the wheat is on a ſpindling ſtalk; if it is, it is ſix to one odds, but it ſpoils the crop, by bruiſing the ſtalks: no, if it is done at all, it muſt be done before the wheat is on the ſpindle; and when it is done, it may be drawn, the length way, over the ridges, or croſs them, as the wetneſs or dryneſs of the ground indicates. So barley ground muſt be rolled with diſcretion; for, if a farmer ſhould roll his barley, when it juſt appears above the earth, he may ruin his crop by it, as many have done,

done, and do to this day, through their ignorance: for it is plain, that if a barley-field was to be rolled, when the barley is but juſt above ground, the clots of earth, that the roll would break, ſpread, and cruſh down on the infant barley-ſtalks, or ſpires, would ſmother and kill many of them, ſo that they never could ſhoot more; and then the ignorant farmer, that overlooks the cauſe, complains of the loſs of great part of his barley-crop, falſly imputing it to the deſtruction of froſts, chills of wets, or worms, &c. when the true original cauſe is his rolling the barley crop too ſoon, and ſmothering the young ſprouting ſpires or blades; wherefore, a prudential farmer will not roll his barley-crop, till it is two or three inches high, at leaſt: for then, if a clot break on ſuch a long blade, the root, by this time, has got ſuch hold of the earth, as to be able to repuſh out ſuch a blade again, and carry on its growth, with the greater vigour, by means of ſuch a timely rolling. But, even here, it requires a particular caution; a particular one I ſay indeed, for if a medium is not obſerved between the two extremes of rolling barley too ſoon or too late, the farmer may equally ſuffer on either account.

In *Hertfordſhire*, and in moſt *Chiltern* countries, the rolling of corn lands is ſo neceſſary, that though a farmer may plough his ground, as

it ought to be ploughed, dreſs it, and ſow it in a workman-like manner; yet, if after it is ſown with corn, this operation of rolling the ground is not performed, he may loſe great part of his crop for want of it: to prove which, I have firſt to ſay, that, where a chalky ſoil is ſown with wheat, barley, oats, or peaſe, either in the two-bout-ridge form, or in broad-lands, this earth will be in ſuch a looſe texture of parts, as to let either the froſt, the ſun's heat, or the cold air, or the waſhing rains, too freely to the roots of the corn, and very likely do the corn crop a great damage. Now rolling ſuch ground is the only remedy, to prevent theſe miſchiefs; becauſe the weight of the roll cloſes the chalky, porous ſurface, and ſo binds it, as to let theſe extremities of weather to the roots of the corn in a gradual degree; and yet, for all the farmer's precautions, and diligent endeavours on theſe accounts, the power of froſts, winds, and heats ſometimes overcomes all his art, and hurts his crops: for example, in the great froſt of 1739-40, all thoſe chalky lands, that lay moſt expoſed to the north and eaſt winds, were ſo ſhattered by the froſts and winds, that the farmer had hardly his ſeed again, in return for what he had ſown for a wheat crop; becauſe the froſts, in the firſt place, looſened the top earth ſo much, as to give the winds an opportunity to blow it from

from many of the corn roots, and then the froſts got ſuch an eaſy acceſs to them, as to kill moſt of them; and this, notwithſtanding the benefit that the rolling part communicated to the corn crop. If then rolling the corn ground will not ſecure the roots of the grain, from the power of extreme froſts, winds, heats, and rains; how much leſs will it be able to withſtand theſe violences of weather, if ſuch ground was not rolled and cloſed at all. Therefore, the farmer that does not roll his corn ground after ſowing, will, in courſe, ſuffer a great loſs; and the more, if theſe extremities of weather happen to be very violent. Thus, in ſandy lands, wheat is the moſt expoſed of all other grain, to the fury of froſts, winds, rains, and heats; becauſe this, as well as chalky ſoils, is the looſeſt of earths. Indeed, where a ſand is of ſuch very looſe parts, that it will not admit of the growth of wheat, the danger is not ſo much in *Lent* grain, by reaſon it is ſowed in *March*, or *April*, and generally free of the damage of froſts: but, as wheat lies all the winter abroad, it often ſuffers, in theſe two ſorts of ſoils, beyond all other grain. And the moſt of all, where a farmer ſows theſe ſoils of chalky, or ſandy loams, with wheat, without any dreſſing or rolling; for then the extremities of weather ſeldom fail of deſtroying moſt part of ſuch a crop, either in

winter,

winter, by froſts, cold winds, and rains, or in ſummer, by the violent heats of a long dry time. In this caſe, dreſſing and rolling the land ſtand the farmer's great friend, becauſe the dreſſing enables the wheat roots to take ſtrong hold of the ground, and the rolling helps further to faſten the earth about them, and keep out theſe aerial violences. Therefore, whether it be a wheat, or *Lent*-crop, that is ſet on theſe ſoils, rolling is one main preſervative of ſuch a crop. And where the wheat is ſown in two or three-bout ridges, in theſe earths, the farmer, that he may the more effectually cloſe the top and ſide ſurfaces of ſuch ridges, draws his nine feet long wooden roll athwart or croſs theſe ridges, whereby near three parts of the land in four are rolled. Some therefore roll their chalky, ſandy, and loamy corn grounds, quickly after their being ſown; others, not till *January*, *February*, *March*, or *April*, fearing the fatal effects of *March* winds, more than froſts; for, if theſe blow the earth from the roots, they are expoſed not only to the froſts, that may happen in *March*, *April*, and *May*, but alſo, if they miſs being hurt by them, the heats may ſtill dry them, ſo as to make them produce a bad crop. For the prevention of which, in our *Chiltern* country of *Hertfordſhire*, we ſeldom fail to roll our horſe-bean and peas crops, as well as barley and oat crops,

crops, after the corn-heads have ſhewn themſelves above ground. When beans are about an inch or two high, we draw the roll over them to cloſe the ſurface, and new mould up their ſtalks; which adds a fertility to their growth, as well as helps to keep out froſts, wets, and heats, from doing them much harm.

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BOOK IV.

Of the CULTURE *of* WHEAT.

CHAPTER I.

OF PLOUGHING FOR WHEAT.

A Farmer, famed for his ſkill, loſt many acres of wheat in 1740, by ſowing it in ſtitches, or two bout lands, on a chalky ſoil, that lay to a northern aſpect, which gave this wind, with the help of long froſts, an opportunity to crumble and blow away this looſe earth from the wheat roots, and ruined the crop. However, as experience is the beſt ſchoolmaſter, it taught him to ſow his wheat, for 1741, in broad lands in ſuch light land. When he was aſked, Why he ſowed his wheat in ſtitches in a chalk? he anſwered, he uſed to have good crops by it, but he found an alteration to his coſt this year.

About the Hyde, there is a clay bottom, and a ſtiff loam at top. They fallow with

with the ſwing-plough, by laying two of their ſize-lands into one, which then contain eight bouts. At the firſt ſtirree-time, they plough in the ſame manner. At the third ploughing, they fill in thoroughs, and plough a-croſs into broad-lands; and if the ground is very ſour, they plough it a ſecond time, then fill in the thoroughs, and harrow all plain; and, the fifth time, they plough and ſow wheat in four-bout ſize-lands; here they ſeldom ſow any other grain than wheat and horſe-beans.

A ten-acre incloſed field afforded a diſmal ſight, being thought to contain no more wheat than would grow on one rood, or half an acre, of land well planted. The reaſon was allowed to be, that this farmer gave the ground, which was a clay mixed with gravel, only one ploughing in *April*, and another in *September*; in which ſpace of time, the knot, or couch-graſs, and other weeds had ſo taken it, that the ſoil got very foul and ſour. Notwithſtanding this, our bad huſbandman ploughed in his wheat-ſeed in four-thorough ſtitches, or two-bout lands, that had been well dreſſed all the ſummer before with the fold, and in the ſpring following with ſoot; but all was near loſt for want of ploughing the land oftener, as was apparent by the ſeed's being bound in, and not able to put its blade through ſuch tenacious glebe; which ſhews the excellency

of

of the plough's uſe, whoſe buſineſs it is to reduce ſuch ſurly ſoils into a powdered ſtate, and make them give room to their fixed ſalts to act and nouriſh the vegetables: and ſo great is the power of this inſtrument, in this reſpect, that a piece of ground, well ploughed at ſeveral times, and got thereby into a fine tilth, ſhall, without any other help, bring forward a much better crop of wheat, than a half-ploughed ſour tilth double dreſſed, whereof this very example is a ſufficient proof.

In order to get the ground in a readineſs for ſowing it with wheat, about the beginning of *October*, they fallow it up in *April*, and commonly by ploughing two of their four bout lands into one; at the firſt ſtirree-time, they plough this one bout land, and another ſuch, into one broad-land; at the ſecond ſtirree-time they hack it athwart, and next harrow all plain: then, at the fourth or laſt ploughing, they ſprain and plough in their wheat-ſeed in three or four bout lands, the way the drain lies, leaving two water thoroughs by moulding up the earth out of them to the two bout lands, and little or no ſeed in them; and thus it is that they lay up their wet land high and dry, and leave, at the ſame time, a large paſſage for floods of water to run quickly off. But to be more particular in my account of improving theſe flat, ſour, heavy, and wet earths,

earths, by a new method of ploughing, I have this notion to advance, that, in a dry ſeaſon in ſummer-time, two horſes may be put a-breaſt and one or two length-ways before, to draw the ſwing-plough; or, if they have an iron cock with notches at the end of the beam of their plough, or what ſome call notch-geers, they may plough with horſes all in length a-croſs their broad-lands; that is, after they have ploughed three or four of their ſmall lands together into one broad-land, and ſo throughout the field, they may, after harrowing all plain, plough their ground a-croſs into ſingle bouts, which is what may be ſaid to be a full half ploughing of the earth. The next time, it is to be bouted off the laſt bouts; then run the plough through the middle of each bout, which will almoſt level the whole land, and then it is all ploughed and broke; which, when harrowed, is fit to be ploughed a-croſs into three or four bout lands, and to have wheat ſeed ſown in the ſame. This is a much better way to get their ground into a fine ſweet tilth than is commonly practiſed at preſent, and exceeds all flat and other of their ridge-ploughings; for ſo it is, that theſe farmers ſtand in the greateſt need of any item, that may be ſerviceable to inſtruct them, how they may get their ground fine and ſweet, becauſe, without theſe qualifications, they have not much reaſon

ſon to hope for a full crop of wheat. But, inſtead of ſingle bouting up their ground, they plough it, by way of hacking, once in a ſummer; which, indeed, is a ſort of twice ſtirring or ploughing the earth, but it does not break and ſweeten it, nor kill the weeds, like ſingle bouting it. If theſe *Middleſex* farmers can enjoy a dry ploughing ſeaſon, and plough their ground, after the manner I have directed, they need not be at the trouble of burning the couch-graſs that their ſour and clung fallow land produces, every year, in abundance in many places; nor likewiſe at the great charges of weeding their grounds, in the ſpring time, when they are forced to employ many hands to get the weeds out of their wheat, peaſe, barley and beans; not only to the great damage of the wheat by the tread of the weeders, but otherways, to their great loſs, for I have known it coſt one of their middling farmers ten pounds in one year to clear the fields of weeds. But this is not all that I have to obſerve on the negligence of many of theſe *Middleſex* farmers; there is another main fault that more or leſs of them, every year, juſtly deſerve to be upbraided with; and that is, their fallowing their ſtiff clayey lands ſo late as in *May*, which is as great a miſmanagement in theſe farmers, as it would be for the other ſort of farmers, whoſe land is a raſhy gravel, or a light ſand, to plough it too ſoon; for one ploughing, in

in ſuch light earth, does generally as much ſervice as two or three in a much ſtiffer ſoil; ſo great a difference is there in the knowledge of farming. For example, if I was to plough up my ſmall pebbly, raſhy, gravelly field the beginning of *April*, and plough it four or five times, the ſame ſummer, for ſowing wheat; and alſo, if frequent rains ſhould happen in that time, great part of that little mould that lies between the ſmall ſtones, might, perhaps, be waſhed a conſiderable way down, to the impoveriſhment of the next ſucceeding crop of this valuable grain, becauſe the bottom of this ſoil is of ſo looſe a texture, as to give a very eaſy paſſage to rains, for carrying down much of its beſt earth. But it is not ſo with thoſe ſtiffer lands, which lie ſo flat and wet, that to my certain knowledge, ſome of them could not be got into a fine and ſweet tilth in a whole ſummer, though they were ploughed, early and late, five ſeveral times in that ſpace. Nay, I may affirm with aſſurance, that many fields, even in our *Chiltern* country, whoſe ſoils were of the ſtiff ſorts, but lay much more commodious for a quick drying than thoſe in *Middleſex*, could not be got into a ſweet and fine tilth in a whole ſummer, notwithſtanding all the art and labour that were uſed to obtain the ſame; and then follow the loſſes which commonly attend the ſowing of wheat-ſeed in rough twitchy, and ſour

tilth-earths; as, the burying of a great deal of the ſeed, ſo as never to come up, the exceſſive thinneſs of a crop, a poor, ſmall, dwindling ear and kernel, and the great charge of cutting out weeds from the corn, that ſuch ground ſeldom, if ever, fails of being the occaſion of. But the damage does not end here; I muſt alſo obſerve, that, when ſuch a ſour tilth produces a thin poor crop of wheat, the ſame ground is more than ordinarily exhauſted by the growth of weeds, that infallibly grow up where corn does not. On the contrary, where a full crop of wheat is, there the weed is overcome, and, being prevented from growing, the bulk and cover of the crop keep in the ſpirit of the earth; becauſe the ſun, here, cannot exhale it, nor force the breed and growth of weeds, but will ſo hollow the ground, that one ploughing, next time, will prove as good, and go as far, as two or three would, if a thin, poor crop of wheat had grown on the ſame.

The perſon, I here write of, lives about a mile diſtant from my houſe, has the reputation of an excellent huſbandman, and juſtly deſerves this character in many reſpects; but, in this I am about mentioning, he does not, becauſe he generally lays too much dung on his ground, for a wheat crop eſpecially, which cauſes the land to be ſo low, as not to be ſtiff enough to keep

keep up the wheat, when it is in its green ear; and when it thus falls down, the ſap is checked in its free aſcent, and the kernels thereby prevented from arriving at a full maturity and bigneſs: which is a plain proof that land may be made too rich as well as too poor, for getting a full crop of wheat or other grain on it; for if a hungry, binding, gravelly, loamy ſoil (as this man's is) may be thus damaged by an indiſcreet dreſſing it with dung, intire rich loams may be ſooner brought into ſuch a prejudicial condition, by the ſame ill management.

Theſe lines, then, may juſtly upbraid all thoſe farmers, who ſeldom, or never, employ any other dreſſing than dung, and are ſo indiſcreet, as to uſe it directly out of the farm yard, for nouriſhing a wheat crop; as, to my knowledge, many do, both in *Vale* and *Chiltern* countries, and thereby incur the damage of ſmutty or pepper-wheat, the growth of weeds, and the ſourneſs of their ground. But they are certainly the beſt huſbandmen who firſt clamp and rot their dung, and lay it on for improving a bean-crop, and not directly for a wheat-crop: where wheat is ſown in *December*, and the weather is not too wet or ſnowy, and the ground will admit of it, a flock of ſheep, with a rack of wheat, or bean, pea, or thetch-ſtraw, or hay, will do great ſervice, by feeding them in the fold

for their more plentiful dunging, and keeping them in health: but barley, or oat-ſtraw, in particular, is to be avoided for this purpoſe; becauſe theſe are apt to ſhed their kernels, and ſtain the wheat, by their taking root among it; and then it would be the farmer's great loſs, who muſt ſell a ſack of ſuch ſtained wheat, for a ſhilling or two leſs, than if it was clear from ſuch ſoil. In ſhort, by thus folding on new-ſown wheat, it will cauſe it, in a great degree, to reſiſt winds and wets, and very much preſerve it againſt that loſs, which generally happens to the farmer, when his wheat falls down, and is laid before harveſt; force the worms to quit their living near the ſurface, and gnawing the roots of wheat; and, at the ſame time, by the tread of the ſheep, it will be ſo faſtened and cloſed, that the field fowls cannot come at it to devour the ſeed, nor the froſts to damage it. The third way is done by rotten, ſhort, ſtable-dung, ploughed into the ground at the very laſt ploughing of all, when the wheat ſeed is ſown; this is a good way in one reſpect, eſpecially where the wheat is ſown in two, three, or four bout-lands; becauſe, by this way of ploughing and ſowing, the plough mixes the dung and lays it ſo mixed with the earth, in a very regular manner, to the great advantage of the ſeed's growth, which here is kept warm by the dung, and very much defended againſt

againſt the damage of great winds, hard froſts, and violent rains: but then there is this inconvenience attending it, the dung which naturally is of a hot and mouldy nature, is apt to heat, canker, and ſpoil or damage the wheat ſeed, to the breeding of ſmutty or pepper-wheat: yet, as prejudicial as this is, it is more practiſed by the *Hertfordſhire* farmers, than any other I ever met with: accordingly, I believe, I may venture to affirm it for a truth, that we, in the weſtern parts of *Hertfordſhire*, ſuffer as much, or more, than farmers do in other countries, by this old pernicious cuſtom of laying on our rotten dung, juſt before we plough and ſow our ground with wheat. And this, in a great meaſure, I prove, by what I have been an eye-witneſs of, in other parts of *England*. In *Kent*, and *Eſſex*, to avoid this ill piece of huſbandry, they mix their dung with mould, and ſmall chalk, or lime, early in the ſummer, againſt wheat ſeaſon; which gives them an opportunity of turning their one great heap, and mixing its fertile ingredients together more than once; ſo that, in time, they become incorporated into fine minute parts, free from that mouldy heat, which, as I ſaid, dung alone is ſubject to. And, thus, they not only prevent theſe diſaſters, but make ſuch manure go a great way further in the fertilizing their wheat-crop, becauſe it mixes with almoſt all parts of

the earth. Others think even this too great a hazard, and fear, if they lay their dung on their wheat-land the ſame year they ſow it, that it will heat and canker their wheat ſeed, to the breeding of ſmutty and pepper wheat. And therefore they make a compoſt or a great heap with ſeveral materials, which they lay on their land, when they ſow it with oats, barley, or beans; ſo that in the following year, when they ſow the ſame ground with wheat, they are pretty ſure of being delivered from theſe two misfortunes. This they do in ſome parts of *Eſſex*, near the town of *Barly*, in that part of *Hertfordſhire* next *Eſſex*, and in ſeveral other places. In *Norfolk*, *Surry*, &c. they lime their wheat-land; in *Hampſhire*, *Cheſhire*, &c. they marle it; in *Wiltſhire*, &c. they dreſs their wheat-ground with a white manure; in *Cambridgeſhire*, &c. they lay on oil-cake powder, and in ſome parts of *Hertfordſhire*, they make uſe of ſoot, horn-ſhavings, rags, ſheeps-trotters, cows and hogs hair and hooves, &c. ſtriving as much as they can, to dreſs their wheat-ground with any thing but dung, and laying that on their meadow, or barley, oat, or bean-land; by which they avoid the great damage that naked dung often brings their wheat-crop under. The fourth way is done, by laying long dung over wheat. This practice, as I ſaid before, is chiefly done

through neceſſity, when the farmer has not had dung enough by him in the former part of the year to dreſs his wheat-land with, and therefore is glad to do it now, with that he makes by his ſtable, his hog-ſtye, or his cow-houſe. If by the firſt, it highly concerns his intereſt to make his ſtable-dung, as I have obſerved, from the feed of wheat, bean, or pea-ſtraw, or hay, and lay it under cover, that the rains may not waſh out its virtue; and then, when froſty weather happens that he can draw it on and ſpread it over his wheat, it will do great ſervice. My way, in this reſpect of management, is thus; I lay ſuch ſtable-dung, both long and ſhort together, under cover, as it is carried out of my ſtable; and, as I increaſe the heap, my boy throws the chamber-pot over every part of it, which very much helps to rot and enrich it, and cauſe it to do great ſervice to the wheat-crop at this time of the year. But to this great conveniency, I muſt tack the account of an inconveniency attending the laying on of long dung on wheat; and that is, that ſuch long dung ſhould never be laid on wheat after *December*, becauſe, by the length of the ſtraw, it will be apt to ſmother the young blades of the wheat, and thus do more harm than good. I ſhould have ſaid that the blades of wheat in *January*, or afterwards, commonly get ſuch a length and bigneſs, as to cover moſt, or

all the ground; and then, if ſuch long dung is laid over them, it will be apt to make them look yellow, and perhaps kill many of them; but by laying it on before, in the infant growth of the wheat, it will not only greatly nouriſh it by the help of rains, which will waſh out the fertile quality of the dung and ſtale, but afterwards the ſtraw part will keep the wheat warm, and ſhelter it againſt the north and eaſt winds, which ſometimes kill or cripple thouſands of acres of this golden vegetable, and alſo enable it to reſiſt the chill of waters, that in many flat ſtiff ſoils, are very apt to damage the wheat crop. Laſtly, there is an opportunity to dreſs wheat crops by the hand, in ſowing over them ſoot, peat-aſhes, oil-cake powder, or cows or hogs-hair, &c.

CHAP. II.

OF WHEAT ON CLOVER LAYS.

I Had a field that returned me two good crops of clover in two years; and in this month, I gave it only one ploughing with our wheel fallow plough into broad-lands, and after harrowing once in a place, longways, I ſowed my wheat ſeed, and harrowed three buſhels of it on each acre; which, as ſoon as done, I laid on fifteen

fifteen loads of dung on every acre, that made it grow and flouriſh well till *January*, when I fed it down with my ſheep almoſt bare, but it quickly recovered, and was an admirable good crop; for the winter was ſo mild, and the ſpring ſo warm, that if I had not thus eaten it down, I ſuppoſe it might have been too rank, laid and ſpoiled that way; however, as the ſoil was a loam and a red clay, I ran a riſk, for if ſome weather had happened, it might have kept down the wheat and given the weed room to have been maſter.

Another farmer, near *Dagnal* in *Bucks*, took this method. After the field had laid down two ſummers under cover, he gave it a ploughing, and harrowed in wheat, which lay till the twenty-firſt of *November* following, and then he ſowed over every acre twenty buſhels of ſoot, in order to force on a forward, large, timely head, for a winter ſubſiſtence for his ſheep, and it anſwered accordingly; for he not only enjoyed a feeding crop, but at the ſame time gave the ground another dreſſing, which, in all, were three real ways of dreſſing the land; firſt with clover, next with ſoot, and laſt with the ſheeps dung and ſtale. But this, as I ſaid, is not to be ventured on in all ſoils. This was a loamy, chalky earth, that lay low and warm, and not apt to run into weeds, which brought on an exceeding good crop of wheat at harveſt.

Another

Another farmer, near me, fed his wheat down with his ſheep in *January* and *February*, but loſt moſt of his crop by it, notwithſtanding his ground was in good heart, and dreſſed well. The reaſon was, that this man's ſoil was a wettiſh loam, that lay high, and was expoſed much to the cold winds, that ſo crippled the ſhort bitten wheat, as to give room for the black bennet and other weeds to get the dominion of the corn. The former dreſſed his clover lay on the top, this preſſed his dung in, and indeed, it is thought by many, that top dreſſing is beſt in theſe caſes, provided it be laid on immediately after the corn is ſown, becauſe it keeps the roots warm, and ſecures them the better from the froſts, than if ploughed in.

CHAP. III.

OF WHEAT ON SAINFOINE.

Firſt Caſe. A Conſiderable *Chiltern* farmer having enjoyed a ſainfoine crop many years, after it was worn out, he ploughed it up in winter by the help of gift-ploughs, and afterwards ſeveral times himſelf, till he had killed all graſs weeds and roots, and got the ground into a fine tilth; then, about *Michaelmas*, he ploughed and ſowed the ſame with wheat-ſeed, but

but had not a quarter of a crop in return; however, to recover this his miſtake, the next ſpring-time he ploughed up the ſame land, and ſowed it with peaſe. After the peaſe were off, he ploughed and ſowed the field with wheat again, and then had a good crop.

Second Caſe. Two farmers, living at *Great Gaddeſden*, about two miles diſtant from the former, hearing of the firſt man's loſs, forbore to ſow ſuch ground with wheat the firſt time, but inſtead thereof, after having ploughed their ſainfoine land ſeveral times, to get it into a fine tilth, ſowed it the firſt time with turnips, and after them barley, and then wheat, to great profit.

Third Caſe. Alſo farmer *Butler*, of *Wards*, near *Ivinghoe*, fell into the like miſtake, by ſowing wheat for the firſt grain on new broken up chalky ſainfoine ground, and had hardly any in return. After that, on one ploughing, he ſowed oats, and next time wheat, which then anſwered to his ſatisfaction.

Caſe the Fourth. Nowithſtanding the firſt three caſes happened within two or three miles of another great farmer near me, yet he ſowed his ſainfoine new broken up ground the firſt time with wheat in 1741, but had a poor crop for his pains.

Caſe the Fifth. However, a farmer near the laſt would not go on ſo, for he took a better method,

method, thus: about *Allhollantide* he began to fallow his worn out ſainfoine ground, and, after he had by two ploughings more got it into a tilth, he ſowed it with turnips, in *July*, 1742; for, he ſaid, he had tried to get a crop of oats, after he had ploughed his ſainfoine ground more than once, but could not come by a tolerable one; therefore he ſows ſuch land the firſt time with turnips, then barley, and then directly with wheat: for that his chalky earth raiſed ſo looſe at firſt, that the corn-roots could not get a cloſe lodging, which occaſioned the misfortune. But, by ſowing turnips the firſt, the ſheep trod and cloſed the ground ſo well, as to produce corn in abundance: for ſuch long reſted earth is not only an enemy to a corn crop, the firſt time of ſowing, by being in a very looſe condition; but the worms alſo, that bred in its undiſturbed pores for ſome years together, often do great damage, unleſs a turnip crop precedes the corn crop.

CHAP. IV.

OF WHEAT ON NATURAL GRASS.

THERE is another way of managing a lay of natural graſs, that is to be done by drawing a foot-plough with a broad ſhare on it, which will pare and turn up the turf very thin,

thin, much better than a pecked ſhare wheel-plough: then immediately after this another foot plough may follow, with either a pecked or chizzel ſhare, to turn up and throw freſh virgin mould over the turf, and ſo on till the whole field is finiſhed, and then all will appear like one intire ſurface of mould; when this is done harrow it plain, and ſow three buſhels of wheat over one that is to be harrowed in.—Now, it may be wondered at, why I direct the ſowing ſo much on one acre of ground as three buſhels of ſeed, but this is eaſily anſwered; for, unleſs this quantity is ſown, the crop may ſuffer, becauſe in ſuch ground there is generally not only a ſtock of worms and grubs bred by the turfs lying many years undiſturbed, but, by the ſhallowneſs of the ſtaple, the ſeed is more than ordinarily expoſed to the beaks of field-fowl, and other devouring vermin, which may eat up ſo much as to leave a very few of the kernels to grow into a crop, unleſs a quantity of ſeed be ſown accordingly.

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CHAP. V.

OF THE SORT OF WHEAT.

SECT. I.

Red Lammas.

AS wheat is the king of grain, ſo this ſort has been deemed, hitherto, the king of wheats, for having deſervedly been under the reputation of producing the whiteſt and fineſt of flour, as well is known in particular to the *Londoners*, who call it, the *Hertfordſhire White*; not that the beſt *Lammas* wheat grows in this county, but becauſe of the vaſt quantities of this largeſt bodied ſort, that grow in *Northamptonſhire*, *Bedfordſhire*, and *Buckinghamſhire*, and ſome other northern counties, which are weekly brought up and ſold at St. *Alban*'s, *Hempſtead*, and ſome few other markets in theſe parts, where the greateſt number of water mills are ſituated, for grinding corn in a leſſer compaſs of ground than any where elſe in *England*. It has a red ſtraw, a red ear, and a red kernel; and it makes the whiteſt of flour. However, this is certain, that red *Lammas* has not only a whiter flour, but a much ſofter, and finer, and often a bigger body than others; which makes it the moſt agreeable ſort for the greateſt quality, and therefore is the fitteſt wheat to ſow on the beſt land, on account of

of its fetching the beſt price at market. This ſort of wheat is likewiſe in great eſteem with the *Middleſex* farmer, for its ſtiff jointed, high coloured, long ſtraw, that they ſell in great quantities to the *Londoners*, for littering their horſes with it, ſometimes at eight pence a truſs in ſcarce times, that weigh about thirty-five pounds, which enables them to pay the greateſt part of their rent with this one commodity. It affects to grow in the richeſt vale lands, conſiſting of loams, or black, or blue clays, where I have ſeen it grow to near five feet in height; yet it is by many ſown in *Chiltern* dry loams, and even in ſome gravels, that have been before dreſſed or manured extraordinary well. In ſhort, this wheat was, till very lately, the only ſort ſown in vales, and is that noble ſort, whoſe kernels are ſomewhat longer than pirky wheat, and near as big as cherry-ſtones, when it is ſown as true ſeed in a right ſoil; then it will outweigh the pirks or white wheat; and for theſe benefits, great quantities of its ſeed are bought and carried in waggons into the northern countries, becauſe, about me and *Dunſtable*, it is ſowed in chalky ground, partly for the purpoſe of ſelling the ſeed to be ſown in heavy loams, or ſtiff clay lands in thoſe counties; chiefly for the ſake of its change of ſoil, and becauſe we get the ſame firſt out of the hands of thoſe farmers who make it their buſineſs,

buſineſs, in ſeveral parts of *Buckinghamſhire*, to lay down ground every year, purely to improve this grain for its ſeed; for here it will come off in a large body thoroughly clean, and free from the ſeeds of all weeds. But this wheat has a long lank ear, that expoſes it more than all others to the ſpoil of blights and ſtrokes; for which reaſon a right manager will ſow this wheat the firſt of all others, that it may get into an early hard ear in the blightening honey-dew ſeaſons of *June* and *July*. Therefore ſow this wheat in *September*, or the beginning of *October* at fartheſt. And it is on this very account, that many farmers of late have acted more judiciouſly than formerly; for, in order to avoid this fatal misfortune, ſome have ſown it early with a mixture of pirks or white wheat, whoſe ears, growing in a thick bunchy ſhape, prove a ſort of ſkreen, or ſhelter, to keep off and break the honey-dew, and other blightening cauſes, from the red *Lammas*, in a great degree. Red *Lammas* wheat, when thorough dry, will weigh ſix buſhels weight; I mean, five buſhels in meaſure will weigh ſix buſhels in weight, yet will not yield quite ſo much flour as the ſame quantity of pirky wheat will. Red *Lammas* wheat grows about ſix or twelve inches higher than pirky wheat; and as it ſhades too much, it is not ſo proper to ſow with pirks, as ſome think, though others think 'erwiſe.

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SECT. II.

Pirky Wheat.

THIS wheat has a white ſtraw, a white ear, and a red or yellowiſh kernel, more round than *Lammas*, and has more of late, than ever, got into reputation for its profitable qualities, particularly for that one of growing in *Chiltern*, gravelly, and chalky ſoils, where it will flouriſh and yield excellent crops, when the red *Lammas* will in ſome meaſure fail, becauſe this ſort of wheat will grow in a poorer ſoil than that, and yet return as many buſhels as *Lammas* will in rich loams or clay, provided ſuch gravels, chalks, and light loams, are well ſowed and dreſſed with a ſufficient quantity of manure. Its bunchy ear is not ſo ſubject to be blighted as the red *Lammas*, becauſe its corns grow cloſe in a ſhorter ear. The kernels of pirky wheat have rather a thinner ſkin than that, and, if of the right ſort, will yield abundance of fine flour, and the more when they are full dry, for then they will crumble under the ſtones into much meal and little bran; and as the very fineſt and ſhorteſt bran cannot be eaſily ſeparated from its flour, it thus becomes coarſer than that made from *Lammas*, but this is compenſated by the quantity it makes. For this reaſon, when pirky wheat is got into

the barn dry, and has a good body and colour, it will fetch at market near, if not altogether as much as *Lammas*.

This pirky wheat has but a ſingle chaff, ſo that when it is ripe, the kernel may be almoſt ſeen through it, for then it is ready to ſtart out of it. Five buſhels of pirky wheat ſeldom weigh more than five buſhels and a half in weight, or three pecks at moſt; yet if the ſame meaſure of the red *Lammas* is ground, the flour of the pirks will weigh more than the flour of the red *Lammas*, for the foregoing reaſons.

Pirky wheat has four or five ſets of kernels, when the *Lammas* has but two or three. It alſo has this good quality, not to draw the ground ſo much as the *Lammas* ſorts, becauſe the ſtraw of the *Lammas* is taller and bigger than that of pirks. When pirky wheat is ſown in gravelly ground, it generally acquires ſuch a colour, that it often deceives the buyer for *Lammas*, and is accounted the thinneſt ſkinned wheat of all others. The red pirks are beſt, the yellow are rather thicker ſkinned, and hardly to be known from yellow *Lammas*, as the red ſort is from red *Lammas*, and the white pirk from the white *Lammas* wheat. In gravels and lean loams, the pirky wheat and *Lammas* grow much of an equal tallneſs when mixed.

SECT. III.

Yellow Lammas.

THIS wheat has a white ſtraw and a red ear; its kernel is of a yellowiſh red colour, rounder, ſhorter, and not ſo guttery as the red *Lammas*; nor is the ear of the yellow ſo long by an inch as that of the red, is nearer of the pirky nature, has a flour near as white and as fine as that of the red *Lammas*, and whiter than that of pirks and white wheat; its ſkin is a little thicker than that of the red, and thus it runs ſomething more into bran. The flour men do not care to buy this yellow wheat in ſummer, by reaſon its thick ſkin is then ſo dry, as makes it apt to grind into a fine bran, that mixes ſo much with the flour as to make it coarſe. But in winter they readily purchaſe it, for then its ſkin quits its flour with eaſe. This wheat will grow on chalks, gravels, clays, and other poor land, much better than red *Lammas*, but degenerates ſooner than moſt other wheats; for you may in a few years ſow it too long in the ſame ſoil, till it dwindles to ſo ſmall a kernel, as not to be worth ſowing. Therefore, it is now very common to ſow it in a mixture with pirk, becauſe it is a much ſurer crop this way than when ſown alone. Yellow *Lammas* yields a peck or two of flour leſs, in five

buſhels, than red *Lammas*; yet I know more than one farmer that ſows yellow *Lammas* in their ſtiff clayey loams in the *Chiltern*, and thinks it the very beſt ſort, for its thin ſkin, cloſe ear, and good yield; and beſt agrees to be ſown with pirks, becauſe it grows about four inches higher, and ſhelters that the better from blights.

As a *Chiltern* farmer cannot well pay his rent without crops of turnips or rapes, ſome, if not all his turnips or rapes, cannot be eaten off time enough for ſowing the ſame land with a *Lammas* wheat, becauſe this wheat growing on a long ſtrong ſtraw, and in a long ear, where its kernels ſtand the furtheſt apart of all other wheats, requires an early ſowing to ripen it in due time; therefore, after *October* we account it rather too late to ſow this ſort, leſt the farmer loſe great part of the crop by it, becauſe, by ſuch late ſowing of this *Lammas* wheat, it will very probably be too late in its green ear, and thereby be the more expoſed to the damage of honey-dews and blights, for this wheat, more than any other, is leaſt capable to reſiſt theſe ſort of prejudices. On this account we have recourſe to the great conveniency of ſowing pirky wheat, by reaſon this has a ſhorter ſtraw and cloſer ear; is a hardier ſort than the *Lammas*, for by its low ſlender ſtraw, and bunchy ear, it is the better able to reſiſt honey-dews and blights. Again, as turnips

are

are generally ſown on a gravelly, a chalky, ſandy, or dry loam, and eaten off by ſheep or bullocks; the *Lammas* wheat will not agree with ſuch dry lean earth, near ſo well as a pirky ſort; for a loam beſt affects a rich ſtiff ſoil, to maintain its long thick ſtraw and lank ear, when a pirky wheat will flouriſh on a leaner and dry one, which makes it of great value to follow a crop of turnips; and on this account it is, that all over *Hertfordſhire* its farmers make uſe of hardly any other ſort to ſow after theſe roots, and this very late in the year, for I have ſown it in the beginning of *March* upon neceſſity, and as it happened, I had a good crop late in harveſt.

SECT. IV.

White Wheat.

THIS white wheat has a white ſtraw, and a white bunchy ear; it kernels as big as pirks, grow cloſer together than the red or yellow *Lammas*, and thus is better ſecured from ſtrokes and blights than they are. Now this corn is moſtly defended againſt theſe incidents by means of its rough chaffs, for the right ſort of white wheat has two or three that encompaſs each kernel, which alſo preſerve it in a great meaſure from the damage of flies and other inſects, which are apt to ſpoil wheat while it is growing in the ear.

When this excellent wheat is near ripe, its true ſort may be known by its aſpect, for then it will appear as if it were hoary all over its ear.

This wheat weighs rather lighter than either the red or yellow *Lammas* or pirks, yet makes more ſtuff or flour than they do, becauſe its very ſmall bran remaining among it is not eaſily perceived, for as its coat or ſkin is of a light colour, it gives the meal and bread a pleaſing yellowiſh caſt.

There is a ſmooth-eared ſort of white wheat, that with us is not reckoned ſo valuable as this rough eared ſort, and are both diſtinguiſhed by the names of white pirks and white *Lammas*. But I muſt own, I never ſaw ſuch large kernels of white wheat as I did in half tubs, as they ſtood in *Taunton* market in the year 1737, where the farmer ſells this, and other ſorts, by the peck and half-peck to the weavers and country poor people, who here call it *Holland* wheat; and in ſome markets it ſells for more money than any other: but at *Hempſtead* it ſells for one or two ſhillings leſs in a ſack than the red *Lammas*, or pirks, becauſe here they chiefly endeavour after getting the fineſt flour for ſupplying the *London* baker and paſtry-cook. The flour of white wheat is of ſo ſhort a nature, that the workman can hardly make a loaf of it that will ſtand without cracking; and therefore it is generally

mixed

mixed with the flour of the *Lammas* ſort, which improves each other, ſo as to make excellent bread. White wheat will grow well both in vale, ſwampy, ſtiff ſoils, and in *Chiltern* dry grounds.

SECT. V.

Dugdale Wheat.

IN *Eſſex* they call this *Grey-poll Rivet*; in *Huntingtonſhire*, *Dunover Wheat*; in the weſt-country, *Grey-poll* and *Blue-poll Wheat*; in *Hertfordſhire*, *Duck-bill*, or Dugdale *Wheat*. In *Berkſhire*, there is a white-cone wheat, whoſe ſtraw is like a ruſh, full of pith, and not hollow, like the *Lammas* ſort; however, theſe are all bearded wheats. The common duck-bill wheat has a darkiſh, brown, crooked, guttery kernel, rather bigger than any other wheat; but its chaff is better thrown away to make dung, than to give to cattle, becauſe, by the ſharpneſs of its ſides, it pricks and cankers the horſes mouths. It ſhould be ſown a fortnight before *Michaelmas*, at lateſt, becauſe it is always late ripe, and then in a ſtiff ſoil; for this bulky wheat is very apt to fall by the wind and rain; therefore no light ſand ſuits it.

This ſeed, when ſown in a fine, well dreſſed tilth-ground, produces the moſt of all others.

One ear has been ſaid to have had above an hundred grains in it, and on an acre above fifty buſhels of wheat have grown; but, as its flour is of the coarſeſt and heavieſt ſort, it is ſold for two or three ſhillings leſs in a ſack than the *Lammas*, pirks, or white wheat. Its kernels are of a brittle nature, and therefore grind well with the *Lammas* ſort. One buſhel of *Dugdale* and three of *Lammas* make very good bread; but in many places in the weſt-country, the bakers in general allow more of this flour than the other, which cauſes their common loaves to be brown, cloſe, and heavy, as I obſerved (and that moſt of all) in *Somerſetſhire*, where, I believe, they ſow more of the grey and blue-poll wheat, than in any other part of *England*. In *Hertfordſhire*, *Bedfordſhire*, *Bucks*, and in moſt of the ſouthern and eaſtern counties, little of this wheat is ſown, and then it is chiefly for the farmers uſe, becauſe a great deal of this will grow in a little rich ground, which enables them to make the moſt at market of their better ſort. This wheat is fit to reap when its beards are ready to drop off; are hard to thraſh out, and yield a great deal of chaff.

They never brine or lime the ſeed of bearded wheat, for it is never known to ſmut. Two buſhels of ſeed is the common allowance for one acre of ground, as it is a great brancher. It

will grow in rough ſour tilths the beſt of any wheat, therefore ſome ſow it on only one ploughing up of a lay, and harrow it in. One buſhel of this mixed with flour of *Lammas*, the *London* baker approves of, becauſe it keeps the bread a day or two longer moiſt than uſual, and yet its natural coarſeneſs is not perceived by the cuſtomer.

SECT. VI.

Egg-ſhell, or Mouſe-dun Wheat.

I Do not know that any of theſe grow in *Hertfordſhire*, or any where elſe in *England*, but in one particular county that I have travelled through. Here they told me that theſe are ſynonimous names for this wheat, which they affirm to be the beſt in *England*, becauſe it makes the fineſt of flour; and, indeed, I was ſurprized to hear afterwards one of the greateſt bakers in *London* confirm the ſame, who aſſured me it beat our red *Lammas* for making a white bread, that the flour of red *Lammas* could not come up to. I have handled ſome of this wheat, and muſt own, by its outward appearance, it did not promiſe all this; but its inſide was, by all in the neighbourhood, allowed to anſwer the character I have given of it.

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SECT. VII.

Change of Sorts.

IT is yearly experimentally proved by many curious farmers, that the change of ſeed gives a great improvement to a crop of grain, and eſpecially to wheat; which being the chief corn that meets with the moſt certain ſale of all others, and on which, as I ſaid, two years rent depends, calls for the beſt management that can be given it. I knew a great farmer ſo careful in this matter, that where he ſowed his red *Lammas* wheat one ſeaſon, he ſowed a yellow *Lammas* the next ſeaſon; and ſo nice was this man, that he carried on the like piece of œconomy to the third ſeaſon, or ninth year, by ſowing white wheat on the ſame ground; for it was his notion, and what he has truly experienced, that where even peaſe were ſown twice in the ſame field, though a fallow and a wheat crop came between, the latter would prove much the worſe crop for it. Another of my acquaintance, who rents a large farm between *Hempſtead* and *St. Albans*, ſows five ſorts of wheat in his incloſed fields; as the red and yellow *Lammas*, pirks, *Dugdale*, and white wheat, and aſſigns this reaſon for it; that if one ſort miſſed he had the greater chance for another to hit, and thereby became the better enabled to change his ſeed, and adapt a proper

ſort

ſort to a proper ſoil. From whence I obſerve, that ſeeds of vegetables, like animals, affect to be nouriſhed by variety of food.

This knowledge induced a gentleman, who lived near *Acton*, in *Middleſex*, to commiſſion me to buy him forty buſhels of the right ſort of pirky wheat, that grew laſt on a chalky ſoil near me, to ſow it in his low, wettiſh, ſtiff, loamy, clayey land; and he not only had a moſt plentiful return, but ſuch a bodied wheat as beat all others in *Uxbridge* market, where he always ſold his grain. Near *Amerſham*, in *Buckinghamſhire*, a farmer in the ſpring, 1741, having ſowed ſome of his own bean-ſeed in one part of his common field, that he had before ſowed with the ſame ſeveral years, at laſt was perſuaded by a friend to buy ſome horſe-beans at market for change-ſake, and ſow in the other part of the ſame field; and the laſt ſown proved by far the ſuperior crop. The rath-ripe barley, if ſown more than two years, with us, will degenerate into our common barley, notwithſtanding our ſowing it in warm dry ſoils, as the gravels and chalks are; for this, at firſt, comes from off a ſandy loam, about *Fulham*, *Hammerſmith*, and *Chelſea*.

If this year we ſow that barley-ſeed which came off a chalk, or gravel, on our red clays, or wet ſtiff loams, the kernels will be of a reddiſh colour and thick ſkinned. On the contrary, ſow the

the ſame ſeed in their former ſoils, and they will become white bodied and thin ſkinned, which plainly ſhews, that it is not ſo much the change of climate that occaſions ſuch alteration, as the ſoil.

For a further proof of this, the *Ayleſbury* vale farmer (whom I take to be one of the moſt obſtinate bigotted ſort) has at laſt been prevailed on about twelve years ſince, to ſow barley now and then, inſtead of wheat, on his ridge lands by way of change, and, ſince, has found ſo much advantage by it, that the wheat, barley, and bean crops are all greatly improved by ſuch a change.—The *Acton*, *Edgware*, and *Uxbridge* farmers are alſo, for the moſt part, under the cuſtom of ſowing only wheat and horſe beans: but, if they would ſow barley between, they would certainly find their account in it, for more reaſons than one.—If white wheat is not changed from one ſoil to another, it will degenerate, and grow into a ſteely corn, of an ugly dark colour, little better than *Dugdale* wheat.

A great farmer, near *Beech-Wood Park*, by *Market Street*, uſed to ſow a hilly field with wheat, as far as the hilly part went, becauſe it was a ſtiff clayey ſoil; but, the bottom part being a gravelly ſtony piece of land, he always in the ſeaſon ſowed it with barley for many years, till

till at laſt he was perſuaded to ſow all of it with wheat, and there grew a moſt admired, ſtrong, reedy ſtraw, and the beſt of wheat, which was imputed chiefly to the change of ſeed.—The yellow *Lammas* wheat, in particular in the whitiſh loams about *Ivinghoe Arſon*, has been obſerved to decline, if you ſow the ſame ſeed in only two ſucceſſive ſeaſons, on the ground it was ſown on before: for it is their received opinion here, that they may ſow this ſort (as they term it) till they loſe it; that is, till it degenerates into a moſt poor thin kernel. Another great farmer that I was acquainted with, uſed to keep that wheat two years that he ſowed for ſeed; and, as it grew on hilly chalky loams, the vale waggoners would buy and carry it down to be ſown in their bluiſh clays, and black moiſt loams, for the *Lammas*, or pirks, coming off ſuch dry loams, proved an excellent change; and by means of its age, the ſmall underling kernels would be hindered growing, for in that time, they had loſt moſt of their radical moiſture and property, and accordingly they ſuppoſe the reſt of the larger kernels will never grow into ſmut. Another inſtance I bring, for proving the great benefit of changing ſeed every year, is this: I know a curious gardener, who ſows his broad beans in drills, made by the foot-plough, and covers them by hand houghs. His ſeed he carefully ſaves, and every year carries

ries it twenty-two miles to *London*, where he ſells it at the ſeed ſhop, and, as his beans come off a gravelly clayiſh loam, he gives money to boot (if his is not ſo good) for *Windſor* beans that come off a dryer ſoil. But Mr. *Tull* lays ſuch ſtreſs on houghing of corn, that he writes there is no occaſion for changing of ſeed if ſo managed.

A farmer at *Hudnall*, near me, who rents about a hundred pounds a year, is ſo happy as to enjoy diverſity of ſoils in the ſame. One field has a clay bottom, another a loam, another a gravel, and another a chalk. Theſe give him an opportunity every year to change his wheat ſeed. Now this man ſows only two ſorts, the red *Lammas*, and the pirks; if he ſows the *Lammas* on his clay this year, next he ſows the ſame ſeed on his gravel, or chalk, which though theſe laſt are not truly proper ſoils for this ſort of wheat, yet this proves no impediment with him, for he dungs or manures the ſame ground ſo well, that he ſeldom fails of a good crop. In the ſame manner he uſes his pirky wheat, which is a ſort that grows well in any of the four ſoils. But this is a conveniency which few enjoy; therefore the next way to ſupply it, is to change ſeed with neighbours who have different earths; but where ſuch a correſpondence does not reign, the market may ſupply it, that affords a variety at moſt

times. Yet this farmer did not truſt altogether to the change of his ſoils for keeping his wheat-ſeed from degenerating; he had alſo a great dependance on the preparing his ſeed for ſowing, after a different way from all others, that it might the better anſwer this purpoſe.

CHAP. VI.

OF THE TIME OF SOWING.

IN the *Vale* of *Ayleſbury*, they ſeldom or never begin ſowing wheat till *Michaelmas*, leſt their fruitful ſoil cauſe it to grow rank and winter-proud, and to ſpend itſelf in growth, as to appear, in *April* and *May*, of a ſickiſh, yellow, dying colour, when it then ſhould ſhew itſelf in a moſt flouriſhing, verdant green ſtate and lively condition. After a ridge half acre land has been well dunged or folded over, or otherways well dreſſed and ploughed into a fine tilth, they harrow all plain, and ſow it broad-caſt twice in a place, by croſſing the throw. Thus the ſeedsman ſteps backward and forward, in all four times, till he has done ſowing the half acre land, and then begins to plough all the ſeed in with the foot-plough by the earth.

It concerns every farmer to avoid ſowing in *December*, unleſs there is ſuch a proſpect, or other

other neceſſitous reaſons; I ſay, a neceſſity that may thus happen. In caſe the turnips, or rapes, are eaten off, and the ground is ready to be ploughed and ſown with wheat in dry and open weather in this month, then it may encourage the ploughing and ſowing ſuch a field with wheat; becauſe, at this time of the year, this ſort of weather ſeldom happens, elſe the ſowing of wheat ought to be deferred till next month; for this is a ſtanding rule with many of the experienced and knowing farmers; that wheat ſown in a favourable ſeaſon in *January*, will be as forward as that in *December* before *Chriſtmas*.

An old ſagacious *Chiltern* farmer of my acquaintance being aſked, why he did not ſow his ground with wheat in *December*, when it was prepared and made ready for it, anſwered, that a fortnight or three weeks hence would be much better, becauſe the days would be longer, and the weather come on warmer; for, if wheat was ſown in *December*, or even in the beginning of *January*, the froſts would be apt to overtake it on the ſprout or chip, and very likely ſpoil it. Therefore it would be much ſafer to ſow it towards the latter end of this month, and then it will be as forward as that ſown even in the beginning of *December*: hence I would obſerve, that, in caſe wheat-ſeed is not ſown in *September*, *October*, or *November*, it is better to ſtay till

January,

January, for the foregoing reaſons, as well as thoſe that follow; for by this time ſuch wheat makes its firſt ſprout: in *February* the ſun's heat increaſing in a conſiderable degree, it will, unleſs the froſts are very ſevere indeed, come on apace. Yet none, I preſume, will be ſo ſilly, as to refuſe to ſow wheat in *September*, *October*, and *November*, where they can conveniently do it, for the ſake of ſowing it in *December*, or *January*; for at beſt all thoſe, who ſow wheat ſo late, run a great riſque of getting a plentiful crop; for the late ſown wheat is liable to ſeveral diſadvantages. One is, that the froſt may keep it ſo long in the ground before it vegetates or ſprouts, that it may rot.

Secondly, If it has a good ſprouting or chipping-time, it may be yet killed by the froſt. *Thirdly*, By late ſowing, it will be late in bloom; and then the hot, dry ſeaſon, may dry the green kernels ſo much, as to make them become no bigger than oat-meal grouts. *Fourthly*, The honey-dews, that fall moſt in *June* and *July*, will be apt to cloſe and glew up the green ear ſo tight, that the kernels cannot enlarge themſelves, or ſo ſpot and poiſon the ſtraw as to hinder the free aſcent of the ſap, and then enſues a ſort of blight. *Laſt of all*, Late ſown wheat, by the ſhortneſs of the days, and the length of the nights, and the rains that ſometimes fall in the

latter end of *Auguſt*, and in *September*, often cauſe the farmers a difficulty to get the wheat home in thorough dry order.

Wheat is ſeldom ſown ſo late as *November* in the *Middleſex* low wet grounds, nor in the vale of *Ayleſbury*, and others, where they lie ſo wet and flat, that they are obliged to ſow their wheat in ridge lands; I mean in rood, half-acre, and acre-lands, that are always ploughed one way; but where turnips are ſown, it is the yearly practice of many farmers to ſow the ſame ground with wheat in *November*, *December*, *January*, or *February*, and ſometimes after cole or rape is eaten off, &c. But to be more particular, I ſhall mention ſeveral reaſons for ſowing wheat late: *Firſt*, In caſe a farmer has a hot, rank, gravelly, or ſandy ſoil, or a warm ſituated rich loam, he may be timorous of ſowing ſuch land with wheat in *September*, or *October*, leſt it grow winter-proud, and ſo rank as to ſpend itſelf in too forward a growth before the next ſpring; for, if it ſhould do ſo, there will then conſequently enſue a poor crop. *Secondly*, He may be forced to ſow his wheat late, if he be reſolved to ſow it on a clover, or ſainfoine lay, that he could not conveniently get reduced into a fine tilth before *November*, *December*, *January*, or *February*. *Thirdly*, It may, and frequently is the caſe of many *Chiltern* farmers, to ſow part of his wheat

crop,

crop, after his turnips or cole are eaten off, which is ſeldom done till ſome of theſe months. And, *laſtly*, Where a ſward-ground is ploughed up to ſow wheat, or where wood has been grubbed up for the ſame purpoſe, then, where a perſon is reſolved to ſow wheat as a firſt crop on the ſame, it ſhould not be done till late, leſt ſuch a crop grow too rank too ſoon, be laid flat, and rot on the ground.

February is the lateſt that wheat may be ſown in; but when it is to be done, a due regard ſhould be had to the nature of the ſoil: If it is a ſtiff wettiſh earth, then two or three bout ſtitches or ridges, are the beſt form to ſow the ſeed in, either by a ſingle or double plough; and if a fold could be run over it after ſowing, it might do great ſervice to the wheat crop; becauſe as turnip, rape, or rye-ground commonly turns up clotty, after theſe vegetables are eaten off, the ſheep, by the hardneſs of their tread while penned, will very much break it, and make it ſomewhat finer than when the plough left it; will cloſe the earth about the body of the ſeed, and prove a great ſecurity and fertility to it.

But where the land is of a dry ſhort nature, wheat-ſeed is beſt ſown in broad-lands in *January*, becauſe, beſides the cover of the harrows, oats, peaſe, beans and barley, being in many places ſown in *February*, will employ the

beaks of field fowls, and in a greater degree divert their ſearch and feeding on the new ſown wheat. But it would be a much greater ſecurity to all wheat-ſeed, ſown in the broad-land mode, if a fold could be employed over it, and begun as ſoon as the ſeed is in the ground; however, as few can do this at this time of the year, if good rotten dung is immediately, in a thick quantity, ſpread over the wheat-ſeed, as ſoon as the harrows have done their work, it would not only be a ſecurity againſt froſts and chills of wet, and drought, but prodigiouſly bring on a forward and luxuriant growth, to the great advantage of the farmer; and the more, becauſe ſuch a fertile penning of ſheep, or thick coat of rotten dung, will cauſe the wheat to get ſo quick a growth, as very likely to miſs the ſtrokes of mildews, and other blightening cauſes, which late ſown wheat ſeed not thoroughly dreſſed, or manured, is moſt liable to ſuffer; for, when any wheat gets later than ordinary into its green ear, its ſtalks and ears are generally damaged by theſe incidents, oftentimes to the deſtruction of great part of the wheat-crop.

By ſowing wheat-ſeed in *February*, as the days are got to a fine length, and the ſun's heat increaſeth on our iſland, the wheat-ſeed, ſown in that month, will preſently be forwarded in its ſprouting; and, where it has a ſufficient ſtrength of

of dreſſing or manure allowed it, it will make expeditious advances in its growth, and be thereby enabled to withſtand thoſe extremes of froſts, wets, and winds, which, in *March* eſpecially, oftentimes kill late ſown wheat in poor lands. But, to ſpeak cloſer to the matter, I muſt ſay, the black froſts of *March*, and the ſeverity of the northerly and eaſterly winds, which uſually blow for a long time at this ſeaſon of the year, have ſometimes deprived farmers of near half the crop of wheat they would otherwiſe have, even of that which was ſown early in well-dreſſed ground.

Much more, then, ought theſe fatal accidents to be guarded againſt in late ſown wheat, whoſe infant blade and tender root are not ſo capable to withſtand the violent chills of inundations of waters, long froſts, and cutting winds, as the more forward ſown and ſtronger wheat-root and blade are. Hence it ſometimes happens, that wheat-ſeed, ſown in *December* or *January*, is frequently great part of it ſpoiled; becauſe the ſeeds are ſo locked up in the earth by froſts, or chilled by wets for a long time, that it is often either damaged by ſtagnation, or killed by rotting in the ground.

It is therefore of great importance to all *Chiltern* farmers, who think it their greateſt intereſt to ſow wheat in *February* after turnips, rapes,

or rye, to apply a ſtrong and potent dreſſing, or manure, to their wheat-ſeed immediately after ſowing; and the dreſſing, or manure, that ſooneſt affects and reaches the ſeed, muſt aſſuredly be of the greateſt ſecurity, and do the moſt ſervice.

CHAP. VII.

OF THE QUANTITY OF SEED.

IN the blueiſh clays of *Ayleſbury* vale, their rule is to begin ſowing at *Michaelmas*, and then they ſow ſomething more than three pecks of wheat on a half acre of land, broad-caſt, twice over the ſame, and plough it in with their foot plough. But if they ſow a land late in *October*, they ſow four pecks; and if they ſow the half acre in *November*, any thing late, they ſow five pecks on that quantity of ground. In our reddiſh loamy clays, about *Gaddeſden*, we ſtrive to ſow our firſt wheat-ſeed; and if this happens to be in *September*, two buſhels on an acre ſometimes prove ſufficient; if in *October*, two and a half; if latiſh in *November*, three are but enough, and then we ſow it by ſpraining the ſeed out of a man's hand in two bout lands.

If the land is in a fine tilth, in good heart, and ſowed about *Michaelmas*, the quantity of ſeed is three pecks; but if the half acre is ſowed late,

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late, then more, but ſeldom exceeds a buſhel. After ſowing they never harrow here, but as they leave it they let the ground lie in the ſame poſture all the remaining part of the year till harveſt, for the top of this land will ſhoal and run into a fine hollowneſs even by very ſmall froſts.

The wheat-ſeed that is ſown in *January*, muſt be more than when it is ſown in *September* or *October*, becauſe, by being ſown ſo late, it will not gather nor branch like that ſown ſooner, when a peck leſs upon each acre of ground was ſufficient. Now, therefore, two buſhels and a half, or ſomething more, ſhould be the quantity ſown on an acre.

On poor ground more ſeed ſhould be ſown than on rich; becauſe rich ground will cauſe moſt, or all the ſeed to grow, and very much branch, when poor ground will cauſe ſome of it to die, and little to gather and branch.

CHAP. VIII.

OF THE GROWTH OF WHEAT.

WHEN the wheat-ſtalk is well jointed, and is thick and ſtrong, it is a ſign of a good ear.—A ſmall ear, and large grain; for the ſmaller the ear, the larger the wheat, rye, or barley.—A good cherry year, a

good wheat year.—About two months after the ſhooting of the wheat-ear, harveſt commonly begins.

A dry *March*, a wet *April*, a dry *May* and a wet *June*,
Is commonly ſaid to bring all things in tune.

When black ears appear off wheat, it is a ſign of a good corn year. Wheat ſhews itſelf beſt in blade, for when it comes to ſhoot, it looks thin. A wet ſeaſon, in blooming time, breeds and brings the green fly that ſucks the bloom, and cauſes the ear to miſs kerning: but dry weather and a briſk wind, keep the fly off that they cannot ſettle. But dry weather and a calm time ſuit the bloom beſt, and cauſe a plentiful crop of wheat.

In 1739, a forward ſown crop of wheat had done blooming by *Midſummer*, having begun about a fortnight or three weeks before. A little wet does it good, but a great deal damages. In this wet, cold ſummer, the wheat ſuffered about this time a week or more ſmall froſts, that cauſed many ears to miſs in their kernels. It was this ſevere ſeaſon that tried the ſtrength of moſt grounds, for thoſe that were poorly dreſſed had poor crops; and as it happened this ſummer contrary to moſt others, the latter ſown wheat fared beſt, as to its blooming, becauſe the forward ſown met with a very cold, long, wet ſeaſon,

ſon, which ſtopped ſome, and waſhed off the bloom of other wheat-ears, ſo that thouſands of acres of this grain were furniſhed with only poor, thin, light kernels; but drier weather ſucceeding, the latter ſown had ſuch a good blooming, or kerning ſeaſon, that it produced a full kernel in a full ear. However, the greateſt ſecurity of all others againſt this fatal miſchief, is by ſowing wheat early, for then the green ears commonly meet with the drieſt and warmeſt weather, and conſequently the beſt blooming time; and thus cauſes both the ear and ſtraw to acquire ſuch a hardneſs betimes, while the ſhorteſt nights laſt, that neither the dews nor inſects can ſo eaſily hurt them. In this, and next month, wheat is moſt liable to theſe misfortunes.——Dry ſummers hurt not *England*. That is, it is better by far that the vales feed the hilly country, than that the vales. But there is room for exception, as to the dryneſs of years, for the winter 1739, and ſpring 1740, were dry, and ſo ſeverely cold, that they periſhed a great deal of wheat, ſo as to cauſe it to be ſold for eight ſhillings a buſhel, in *May* 1740; and this it did both in the vales, and in the *Chiltern* countries; for, as I remember, the froſts began about *Chriſtmas* day, and laſted a long time, attended with moſt ſharp winds from the north and eaſt, that killed many of the wheat-roots, but moſt of all thoſe which lay high

high in ridge-lands: yet that wheat which ſtood it, enjoyed ſuch a fine dry blooming time, that none, I believe, was ever known to yield better.

The winter, 1733, was ſo mild, that wheat grew all along very rank and long, till it ſhot into a ſmall ear, as it always does in this condition: the ſame, when wheat looks whey-coloured or yellow flagged, as it did all *May*, and till it ſhot, and after; then it is a true ſign it will be ſmall eared: and this laſt ſign being occaſioned by wets and cold, as it happened all that *May*, and till about the fourth of *June*, it was ſo ominous of a bad blooming time, that the farmers would wager before-hand the wheat did not bloom well: and it accordingly happened; for the bloom came out but ſlow, and in a ſmall quantity, and that was ſeveral times waſhed off, which was a ſure token the wheat-ear would not kern well, nor did it; whereas, the year before, the bloom came on the ear as ſoon almoſt as the flag burſt, and was very thick on it, which brought on a plentiful crop; for unleſs wheat blooms well, it cannot kern well. In 1741 there was as fine a bloom as ever was ſeen, from the firſt to the laſt, and, accordingly, a moſt plentiful crop enſued, which cauſed the market to fall ten ſhillings in five buſhels, in about one month's time, juſt before harveſt.

If wheat looks yellowiſh in *May*, and continues

nues ſo throughout the whole month, it will never rightly recover that ſummer, becauſe then it is on its ſhoot or earing, and paſt hopes; but if it is ſick in the beginning, and recovers before the end, it may chance to be a good crop; for all wheat ſhould may, or look yellowiſh in *April*, and be of a black green in *May*: or take it this way; if wheat holds its colour throughout *April*, and *May*, there is no great danger of a good crop. If it thrives in *March*, it generally mays in *April*; if it thrives in *April*, it commonly mays in *May*. When it mays in *April* it is right, but wrong if in *May*; for then it ſhould, towards the latter end of the month, thrive and ſhoot into ear, inſtead of maying or yellowing; which is often cauſed for want of the ground's being in heart, to enable the wheat to withſtand the cold and chilly ſeaſons.

But to be more particular; your forward ſown wheat often grows ſo luxuriant in the beginning of winter, as to ſpend itſelf too ſoon, and eſpecially if followed with a mild ſpring, which cauſes it to grow ſo rank as to want ſtrength, in this month, to carry it on, and then, in courſe, it muſt have a ſickening time to check it, in order to make it ſhoot with the greater vigour afterwards. Now there are two extremes of weather, that ſometimes happen in this month, which prove fatal to crops of wheat; one is froſts, as

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it happened in *May*, 1734, when hailſtones fell ſucceſſively for three days, which being of a poiſonous, cold nature, and very heavy withal, beat down, and hurt the ſpindle of the wheat, and ſtalks of peaſe, making the latter red headed, and cauſing many to die. This was a ſeaſon ſo ſevere, that on the eighteenth day the iſicles were ſeen to hang at the eaves of houſes; but the poorer ſort of wheat ſuffered moſt: on the contrary, at another time, about the middle of this month, the ſeaſon having been mild and rainy ſome time before, the well dreſſed wheat and barley ſuffered much, by their luxuriant growth; inſomuch that a great deal fell before it was ſhot into ear, which proved of very ill conſequence to the farmer, becauſe vaſt quantities never did riſe again, and did not half kern, eſpecially in the vale grounds, which are the richeſt ſoils; and this misfortune proved the greater, where the wheat was youngeſt and weakeſt in ſtalks; for when this happens to wheat at an older growth, it is often ſtrong enough to get up and recover. When wheat is rank too ſoon, it has tempted many to mow or feed it, in order to bring it under a more regular growth: but this management is better or worſe, according to the nature of the grain, land, or weather. But, before I leave this ſubject, I muſt obſerve, that when

wheat is ſown, at a right time, in a proper ſoil, and the ſeaſons of the year prove favourable, there are many acres that never may or ſicken at all, yet hold their growth and colour from the firſt to the laſt, in right order, then ſuch wheat is in its higheſt perfection. About the middle of this month, 1736, the wheat in the *Chiltern*, high ground, eſpecially, looked ſhort, yellowiſh, and ſick, by means of a very long cold dry ſeaſon, which ruined many crops that were not well dreſſed, becauſe the ground had not ſtrength enough to make it run and rally again, as that in heart did, and recovered. There was a field of latter ſown wheat, which in the beginning of *March* looked at ſome diſtance as if nothing grew in it; yet the ground being clear of weeds, and in tolerable ſtrength, and the wheat not having ſpent itſelf in winter too much, in the ſpring it gathered to that degree, that ſome of it had fourteen ears from one root, as it grew in a loamy, gravelly clay, and proved an excellent crop at harveſt.

A farmer, near *Watford*, had, in the great froſt of 1716, a field of wheat ſown in two bout lands, and it was allowed by almoſt every looker-on, that the froſty weather had killed it; and they adviſed the owner to plough it up, and ſow it with barley, ſaying, if he did not, he would have

have nothing but what grew in the thoroughs that lay out of the wind's power. A plain inſtance of the wiſdom and goodneſs of God, who, though he made the earth to ſeem barren for a long time, even in the month of *May*, 1740, yet, in a miraculous manner, kept the weeds down till the wheat recovered a head; at that harveſt in many places, there were never better crops, and, even where wheat was very thin on the ground, the ears were wonderful large. I had one that had ſixty-eight kernels it it. Some ears were ſix and ſeven ſet, and one that I heard of, had eight ſet; for it is a rule, that after a ſevere winter's long froſt, there commonly follow the largeſt ears.

CHAP. IX.

OF FEEDING WHEAT.

IT was on account of the great rankneſs of the wheat, that many mowed it in this laſt ſpring in order to check its further growth: others fed it late with ſheep, to keep it down that way; this gave me an opportunity to make obſervations on the ſeveral managements of different farmers: one mowed it down very near the bottom, in a low, wettiſh, black ground, that was a rich ſoil, and the wheat very rank,

rank, on *Eaſter Monday*, 1732. the ear being ready to come out of its ſkin or cover; this backned it very much, and it proved a good crop at harveſt: this was done by Mr. —— *Fen*, at the bottom farm, near *Barkhamſtead*. The parſon of *Auberry* alſo mowed his about the ſame time, in an open field, by only cutting off the top-part, and it ſucceeded.

Another finding his wheat likely to run too much into ſtraw, and too little into ear, mowed it, and found it afterwards to ſhoot ſo weak in both, that he ſuffered by it.

Another ſays, under ſuch apprehenſions, it is beſt to mow it early enough: that ſome have mowed wheat three times, and had a good crop; for wheat has two or three knots or joints now if it is mowed late, it muſt be only juſt topp'd with the ſcythe, for if then it be mowed below the bottom knot, its apt to kill it, or at leaſt to cauſe its new ſhoots to be ſo weak, that they will come to little or nothing; but when wheat is mowed high, it ſhoots from the next knot below the cut, and often comes the ſtronger; as I have proved in a field of my own, that I did for trial ſake. This ſort of huſbandry is perfectly neceſſary, when wheat ſpends itſelf too much in chalky ſoils, as it did this ſummer, 1732, more than in the memory of man; for if it is let alone, it will rot at root, tumble

down, and be good for little, as a great deal did; ſo that at *Riſborough* by *Wender*, there was a man had five hundred fifty-three ſhocks, at ten ſheaves each, on five acres of ground; and forced to threſh ſixty ſheaves for a buſhel of wheat. Here then are two extremes in this management; if it is mowed too low when it is high, then it weakens it too much; and if it is not mowed at all, then it is a fault as bad as the other: which made an experienced farmer ſay, in my hearing, that many ſpoiled a great deal of wheat this year, by mowing it too low and too late.

Several others eat it down with their ſheep, and ſucceeded well; however, in this affair, there is required a great deal of judgment; for firſt, if the wheat grows in a rich dry ſoil, clear of weeds, then it may be made more free with, and eat down from *Chriſtmas* forward. Secondly, if it is a wet, clay, or loamy ground, and the wheat thin, this uſage will be hazardous; becauſe the weeds here will be apt to get up and keep down the wheat; nor ſhould it in either caſe be fed in wet weather; for then the ſheep by their tread, will cruſh it into ſuch hollow, wet ground and ſpoil it, or elſe will pull it up with their mouths: the ſame care is alſo neceſſary, that it be not fed too late on ſuch a bottom; for wheat on this cold, wet land, won't recover

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ſo ſoon as that on dryer; and this very caſe attended my next neighbour, who this laſt ſpring fed it ſo late, that it did not recover itſelf time enough, but proved ſmaller than ordinary in the ear; therefore ſeveral farmers think it beſt to turn in betimes, and feed it while it is ſweet, which often is from *Chriſtmas* till the middle of *February* or longer, when it begins to be bitter; and by thus turning in betimes, they will eat the weeds before the wheat. I knew a farmer that kept his ewes and lambs ſo long in, till they eat the wheat up, and left the horſe gold weed, but he ſtill kept them on till they eat or ſpoiled them too; but this ſo ſtunted his lambs, that he ſaid, he would never do ſo again; wethers indeed are far more proper for this purpoſe, and will, if kept long enough on it, eat up both weeds and wheat, provided the former are not too old; and if this work is done with judgment, it will both thicken the wheat, and make it come up much ſtronger.

Some thought themſelves under a neceſſity to turn in ſheep when the wheat ſpindles too early, as it will ſometimes in *February* or beginning of *March*; but this may be partly ſeen before-hand, as they did this laſt *February*, 1731, when many turned in about the middle of the month, and fed it till the fifteenth of *March* following, which did a great deal of ſervice that mild, dry ſpring;

but as I ſaid before, where the weeds are thick and the wheat thin, this way murders it; becauſe the weeds will then get maſter, and choak the grain. In chalks and ſands this method is not practiſed at all, for here the ſheep will either paw it up, or pull it up with their mouths in ſuch looſe, ſhort ground; beſides, this ſoil is not ſtrong enough to carry it ſo forward as the loams are, ſo that it ſeldom or never ſuffers by being winter-proud in theſe lean earths.

A gentleman farmer, Mr. *Dean*, living in his own farm at *Nettleden*, that was a dry incloſed *Chiltern* one, ploughed up a meadow; and, on only one ploughing, harrowed in wheat-ſeed, which came on with ſuch a forward rank head, that tempted him to feed it in the ſpring ſeaſon; this gave him a valuable opportunity to enjoy a plentiful feeding crop in a ſcarce time, and a full reaping crop at harveſt, free of any extraordinary charges; which in my humble opinion, where the land is dry enough to admit of thus feeding ſuch a rank crop with ſheep, is a far better way than Mr. *Yelverton*'s burning the turf, and mowing and reaping off the top of the wheat in *April* or *May*, to check its too luxuriant growth; and this, becauſe the ſheep by their tread and their ſtrong urine, ſtale, and oilineſs of their wool, tread the earth on the roots of the wheat, and faſten it on them ſo well,

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as to cauſe the ſtalks to ſtand the faſter in their after-growth, keep down the worm, and diſcourage all other inſects from attacking it; and above all, by ſuch feeding in *January*, *February*, *March* and *April*, the rankneſs of the wheat may be ſo efficaciouſly checked, as to be kept from running into any deſtructive growth, as I am going farther to prove by the following example.

In our *Chiltern* incloſed country of *Hertfordſhire*, a farmer gave a field of twelve acres (that had been clover one year before) only one ploughing, and harrowed in wheat ſeed on the ſame, without any manner of dreſſing or manure till *March* following; when he ſowed eighty buſhels of *London* ſoot on two acres of the ſame field, and but twenty buſhels on every acre of the reſt, as the uſual quantity is. But, on theſe two acres, he ſowed a double quantity, in order to feed ſome fatting ſheep on the ſame late, when turnips and all green-field meat were eaten up; and accordingly this extraordinary dreſſing anſwered his intention, by hurdling out the two acres, and feeding his ſheep on the wheat till the firſt of *May*, 1743. And though he fed it ſo late, yet, by virtue of a rainy ſeaſon that happened in the latter part of *April*, the wheat recovered, and went on in a flouriſhing condition. But the next example will ſhew the great power that a rainy hot ſummer has on wheat-crops.

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The land was common ploughed-ground, which he dunged well for a wheat-crop, and it produced a rank wheat on the ground in the ſpring, having been before winter-proud, as we call it, which forced the farmer to eat it down with ſheep till *May*-day, and then he let it take its chance: yet, for all ſuch late feeding of it quite bare to the ground, a hot wet ſummer following, the wheat ſprang up ſo faſt, and got in ſuch a burthen, that it fell down before harveſt, and yielded a poor crop of corn. There is, indeed, this conveniency in ſowing wheat on new broken up meadow ground for a firſt crop, that ſuch wheat, if rightly managed, will produce the beſt of ſeed-wheat, becauſe it will be clean from all manner of trumpery; and, though the kernels may be lean-bodied, yet it will ſell for an improved price at market, as being the choiceſt of ſeed; and therefore Mr. *Yelverton*'s management was very right, as to the getting wheat for a firſt crop on his new broken up ground; and alſo in mowing it in *April*, and reaping the top part in *May*: but, for all that, had a wet ſummer enſued, his crop of wheat would have been of little worth at harveſt, as the account obſerves; but he was fortunate in the enjoyment of a dry ſummer, elſe the double dreſſing (if I may ſo term it) of the aſhes, and the richneſs of his virgin-earth, would have ſhewn the difference.

A farmer dreſſed his wheat with ſoot in *November*, in order to eat it off in *January* following. This uncommon action was performed by a farmer who rented a hundred a year, a little more than a mile from my houſe, which proved him to be a bold, but judicious adventurer, as I ſhall make appear. The caſe was thus: this farmer having a large incloſed field of new-ſown wheat, whoſe ſoil was a chalky loam, that lay flat, and ſheltered very much from all winds, was encouraged to ſow twenty buſhels of ſoot on each acre of it, in order to bring on an expeditious cover, or head, on the wheat-roots; (for, of all our common manures, none forces ſo quick, and ſo ſtrong as ſoot) that might ſerve inſtead of ſo much graſs for feeding and ſubſiſting his flock of ſheep in the ſevere, cold, chilly month of *January*; and it fully anſwered his end: for, in that month, it had got ſo large a head of wheat-blades, as fed his ſheep for a month or ſix weeks; which enabled him to continue folding his wethers, all, or moſt, of the time, on the fed wheat, as it was eaten off, and parted by a row of hurdles. Now, the ſoil of this field being of a very dry warm nature, the ſheep fed on the wheat, and lay in the fold of the ſame ground, free of that daubing and chilline ſs, which a clay, or a wet loamy ſoil, would expoſe them to, and damage their bodies; and thus did a vaſt ſervice, in leaving an additional dreſſing behind them, that

enriched the crop of wheat, by thickening the land, invigorating its roots, and bringing on a branching growth of ſtrong ſtalks, and large ears.

I am here alſo to remark, that this action was performed with great judgment; for this farmer knew very well, that this piece of dry ground was the cleareſt and freeſt of weeds of any he rented; and therefore he ventured and ſucceeded; for, had this field been of a contrary ſoil, the conſequence might reaſonably be expected to have been the endangering the crop of wheat; becauſe, if ſuch a crop had been obtained in a clay, or wet, loamy ſoil, it would not have done the ſheep half the ſervice it did in this chalky ſoil; and what might have been worſe ſtill, the natural chilneſs of ſuch ground, and the coldneſs of the ſeaſon, might have ſo checked the ſecond growth of the wheat, as to give the weeds an opportunity of getting the dominion of it, and crippling the crop, to the impoveriſhing of the farmer, as I could make appear by ſeveral inſtances, were it proper in this place.

This piece of extraordinary good huſbandry I have been the more particular in relating, as it may remind the judicious farmer, and inſtruct the ignorant one, in the improvement of his dry, huſky, chalky ſoil, which though commonly let for a mean rent, on account of its looſe poor nature,

nature, yet by a management adequate to its quality, it may be made to produce as good a crop of wheat, as a vale ſtiff ſoil, that is in its original nature far richer than a dry chalky one.

A great farmer fed his double dreſſed wheat with ewes and lambs. His next neighbour did the ſame. The firſt enjoyed a fine crop at harveſt, but the other loſt his, becauſe the ſoil of the firſt was a dry, chalky loam, and richly manured, which cauſed the wheat, after being eat down, to rally again, and out-run the weed; when the other that was a ſtiff wettiſh loam, that had only a ſingle dreſſing, gave room to the black bennet, and other weeds, to out-grow the wheat to its deſtruction.

A farmer, whoſe land joined mine, intending to make the moſt of his wheat-crop, fed it down early in the ſpring, and after it had got a new head, fed it a ſecond time bare with his ſheep; but the conſequence was fatal; for the horſe-gold and black bennet weeds came up ſo thick, as got the ſtart of the wheat; and at this time, indeed, the field appeared green, but with more weeds than corn, to the almoſt deſtruction of the crop. Mowing and feeding down wheat in the ſpring-time, to ſuſtain ſheep, or ſtop its too great luxuriancy, backwards its ripening, and expoſes it to the riſque of the longer nights.

CHAP. X.

OF THE SMUT.

WHEN wheat is in its green ear, the ſmutty ears may be diſcovered as they ſtand, but more as they are nearer being ripe, and this amongſt other ſound ears, by their black kernels, on rubbing which, a black powder will fly out and ſtink. This ſickneſs in wheat happens ſometimes to only one ſide of the ear, when the other parts remain ſeemingly ſound; as was once the caſe of a whole field of wheat near *Hazlemere* in *Surry*, where only the weſt ſide of the ears was ſmutty, and the reſt free throughout the field; which ſeemingly ſhews the diſeaſe to be occaſioned by infectious wind.

Caſe the ſecond. A man having but one field, it was ſown for him with naked wheat-ſeed, by a neighbouring farmer, who wanting a little more to finiſh the field, ſent for ſome of his own that was brined and limed. The latter proved ſmutty, but the former clear, though both were ſown in one day. The unbrined might be ſound ſeed, and the brined unſound.

Caſe the third. A farmer in *Surry* being obliged to cart over one field to come at another, it happened that all the field of wheat proved ſound and clear of ſmut at harveſt, except that part

part which had been carted over, and that yielded a great deal of ſmutty wheat. This ſeems to indicate, that a bad tilth occaſioned the misfortune.

Caſe the fourth. A field of turnips, being half eaten off with ſheep between *Alhollontide* and *Chriſtmas*, was then ploughed up and ſown with wheat. The other half that was not eaten off till *Candlemas*, was alſo ploughed and ſown with the very ſame ſeed, but neither brined nor limed; the reſult was, that the firſt ſown proved ſmutty, and the latter ſown clear and free. By the latter ſeed's being not ſubject to the ſeverity of a very long, ſevere, cold winter, and warm weather daily increaſing on the ſame, I am of opinion it prevented the misfortune that occurred to the firſt ſown. A caſe that happened to many by the violent froſty winter, 1739, who never had any ſmutty wheat before.

Caſe the fifth. There was ſome wheat ſown on a dunghill for a trial, and it proved all ſmutty. It ſeems a plain reaſon, that the great heat of the dung cankered the kernels, and occaſioned the misfortune.

Caſe the ſixth. A gentleman who keeps no ſheep to fold, and ſows only ſo much wheat as juſt ſerves his large family, dreſſes his ground with only his coach-horſes dung; and, though he

he brines and limes, he has ſmutty crops when his neighbour's are clear. The caſe is plain.

Caſe the ſeventh. One of my neighbours, an ancient curious farmer, not only changed his ſeed, but brined and limed it well, yet, the year 1740, had a ſmutty crop. This ſeems to be owing to a long froſty winter, cold ſpring, and dry ſummer.

Caſe the eighth. Two fields, whoſe ſoil is a mixture of white clay, and a hurlucky chalk, which lie on the hanging of a hill, ſheltered from the north and eaſt winds, are obſerved frequently to produce wheat that is ſmutty. The worm, or want of ſufficient air, or the running water off the hill, may canker the roots of the wheat.

Caſe the ninth. If land is dunged with ſtable dung juſt before it is ſown with wheat-ſeed, it is apt to breed ſmutty wheat. An eminent yeoman, near the village of *Barly* in *Hertfordſhire*, and many others that I have met with in my travels, never dung their land the ſame ſeaſon they ſow it with wheat; if they do, they ſay they ſeldom fail of having ſmutty wheat, though they change, brine, and lime in the common way; therefore they lay on their dung the year before, and plough it in for ſowing the ſame with either oats, barley, or beans. But in the weſtern parts of *Hertfordſhire*, and ſo in the vale of *Ayleſbury*, they

they always lay their dung on it for a wheat crop the ſame ſummer, yet obſerve to do it on the firſt ſtirree, which is commonly performed in *May* or *June*, if they are good huſbandmen.

Caſe the tenth. A gentleman's bailiff in the *Chiltern* country, in *September* 1740, on a preſumptive notion that ſmutty wheat would produce a ſound crop, if it was thoroughly brined and limed, bought a ſack that had many ſmutty kernels in it; but, after trial, he found his expectation croſſed, for it returned him a lamentable ſmutty crop.

Caſe the eleventh. By a loamy, gravelly, incloſed field of four acres, there grew a ſpinny wood. This field was ſown with wheat, and about half an acre of it that lay next the wood was very ſmutty, but all the reſt clear, though it was ſown with the ſame ſeed at the ſame time. This ſeems to be occaſioned by the wood's retaining the fogs, or keeping off the freedom of winds, or by the ſuction of tree roots, that may impoveriſh the contiguous ground, and ſtarve the growth of the ſeed.

Caſe the twelfth. It has been obſerved, that when wheat has been ſown late, it is not ſo liable to be ſmutty as that ſown more forward.

Caſe the thirteenth. A yeoman that lives in the *Chiltern* country had a ſmutty crop of wheat

in the dry ſummer, 1740, and when he ſowed wheat the next time, his days-man, by miſtake, took the wrong ſack in the dark of the morning, and ſowed the ſame ſmutty wheat; and it happened that, in the following harveſt, he had half his wheat-crop ſmutty.

Caſe the fourteenth. A farmer, that lives about a mile and a half from me, declared his farm was never troubled with ſmutty wheat for ſeventy years paſt, till 1741, when his crop proved ſo ſmutty, that he had been at *Hempſtead* market four times, and could not ſell it. He only ſprinkled water on his ſeed and limed it.

Caſe the fifteenth. A certain farmer took ſome ſeemingly ſound kernels out of a ſmutty ear, and ſet them in his garden againſt other wheat-kernels that were perfectly ſound: The firſt proved ſmutty, and the latter ſound.

Caſe the ſixteenth. My near neighbour had all his crop infected one year with ſmutty ears here and there, but he ventured to ſow the ſame ſeed after brining, ſkimming, and liming, and it proved a ſound crop. The ſkimmings he alſo ſowed by themſelves, and they proved all ſmutty.

Caſe the ſeventeenth. I was told by a farmer that he tried the following experiment: He waſhed his ſmutty wheat-ſeed in three ſeveral waters preſently after one another, till he had waſhed all, or moſt of the ſmut out of the kernels,

nels. Then he ſteeped the ſeed immediately in brine a few hours, and after he had drawn off the liquor, he limed and ſowed his wheat, and had not the leaſt ſmut the following harveſt. This is certainly a much ſurer way than what I knew

(Caſe the eighteenth.) A ſilly obſtinate farmer practiſed, viz. He put his ſmutty wheat-ſeed into brine, and after it had ſtood a night, he drawed off the liquor, limed, and ſowed it, and had a ſmutty crop in return, 1741, becauſe the ſmut that is ſoaked, or waſhed off, tinctures the liquor, and conſequently infects the ſound ſeeds that are among the heap, as appears by the black glewy mucilage or ſubſtance that remains in the bottom of the brine after ſoaking ſuch ſmutty wheat.

Caſe the nineteenth. Another farmer was of this opinion, that it was thoſe kernels that grow in ſmutty ears and appear ſound, that produce ſmutty wheat, and not the ſmall ſound kernels; for as the ſtraw or ſtalks of ſuch ſmutty ears are generally rotteniſh at harveſt, their ears break ſooner off than thoſe growing on ſounder ſtalks, and are picked up in great numbers by gleaners; when farmers buy ſuch leaſed wheat to ſow for ſeed (as is commonly done, becauſe they think among ſuch wheat there is the leaſt ſeeds of weeds) they run a great riſk of having a ſmutty crop.

crop. Mr. *Tull* is very particular on this matter; his words are theſe:—" Smutty grains will not " grow, for they turn to a black powder; but " when ſome of theſe are in a crop, then, to be " ſure, many of the reſt are infected, and the " diſeaſe will ſhew itſelf in the next generation, " or deſcent of it; if the year wherein it is " planted prove a wet one." Page 250.—The wheat that grows on a two years clover lay, ſeldom or never produces a ſmutty crop.

The concluſion of this chapter, ſhewing, in ſhort, what may occaſion a ſmutty crop of wheat.

Firſt. It may be occaſioned by the weakneſs of brine; that ought to be ſtrong enough to bear an egg.

Secondly. By the weakneſs of the lime, which is beyond the brine, for ſecuring a wheat-crop from ſmut.

Thirdly. By ſowing one ſort of ſeed in the ſame ſoil too often.

Fourthly. By a very froſty winter, a very cold ſpring, a very wet, or a very dry ſummer, or by infectious winds.

Fifthly. By wheat growing very thin among many weeds.

Sixthly. By a rough, ſour, bad tilth.

Seventhly. By infected ſeed that grows in the ſmutty ear, and yet appears to the eye ſound and clear,

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clear, or by ſowing pepper-wheat, or that damaged by inſects, or burnt in the mow, or of too great an age, or too ſmall underling wheat-ſeed.

Eighthly. By the heat of dung that lies along with the ſeed in the ground.

Ninthly. By the uſe of ſtale or urine in the preparation of the wheat-ſeed.

Tenthly. By a ſmall red worm that is very apt to gnaw the kernel or blade of young wheat, and thereby cauſes the ear to be ſmutty, or kills it intirely, as I have known it to do in a chalky gravelly ſoil, in the years 1740 and 1741, about the month of *November*, before the froſts came on.

Laſtly. In very low vallies, great floods, and their continuance, often corrupt the roots of wheat, and cauſe ſmuttineſs, as well as great rains do that fall about the blooming and kerning ſeaſons, ſo that the ears, as well as the roots, of this golden grain, may be damaged by too much wet weather, and brought into a ſmutty condition; for, undoubtedly, all thoſe cauſes that hurt either roots, ſtalks, or ears, in their green growth, tend towards infecting this corn with that ſtinking black ſickneſs called Smuttineſs. After the great froſt of 1739, we have had the forward parts of three ſummers very dry, and the latter parts very wet, ſo that for the three harveſts, 1740, 1741, and 1742, there has been more ſmutty wheat than ever was known in the memory of man.

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Burnt wheat is next to ſmut in its nature, and would have been ſuch had the ſeed been more damaged, or the cauſe been more imperfect. It grows in a bunchy ſhort ear, that contains oftentimes ſome of this pepper-wheat kernels, and ſome very ſound ones; and as they grow in one and the ſame ear, I am apt to believe it is either for want of a ſufficient nouriſhment at root to perfect the whole grains, that ſome of them thus prove defective, and grow into ſmutty wheat; or it may happen by blights that take that ſide of the ear wherein they grow. However, it is certainly of very ill conſequence, when a crop of wheat has too great a quantity of thoſe black pepper-wheat corns in it, becauſe they make a ſack of wheat look pye-bald, help to give a brown caſt to the meal, and therefore is oftentimes rejected by the buyers. Upon theſe accounts it is, that a nice farmer will never ſow leaſed or gleaned wheat, for it has been proved by ſeveral that have made uſe of it, they never are free from a great return of the ſame ſort, if they ſow ſuch gleaned wheat-ſeed, by reaſon there always are many pepper-wheat corns, or ſmall imperfect underling ſound ones in their ears, notwithſtanding all the liming and brining that are applied for preventing the misfortune. Now, whether theſe pepper-wheat ſeeds ever grow again, is a queſtion with many farmers. I confeſs,

feſs, I never gave myſelf the trouble of nicely trying it; but as there is a little ſort of flour in them, they may poſſibly grow, yet it is impoſſible they ſhould produce ſound kernels, becauſe there is not farinous ſubſtance ſufficient to bring them to maturity. Some therefore ſay it is theſe that bring forth ſmutty wheat ears, but many other farmers think they never grow at all; however, there are few crops of wheat that has not ſome of them.

CHAP. XI.

OF HARVESTING WHEAT.

IN a very hot ſummer, about twenty-four years ſince, the harveſt begun ſo early, that many had all their grain in by *Lammas-day*; which ſo provoked one farmer, that he would get in all his thetches by that time to ſave his credit, leſt he ſhould be thought the moſt negligent one in the pariſh: but he paid dear for this punctilio, for the thetches were ſo damp, that he was obliged to carry them out of his barn into the field again, to be dried and houſed in a better manner. But, in the year 1740, it was about the tenth day of *Auguſt* before I, and moſt others, began reaping our wheat, which according to

my obſervation, was the lateſt I ever knew; occaſioned by a moſt ſevere winter, and long, cold, and dry ſpring and ſummer. The wheat that is commonly ripe ſooneſt with us, is the white, or *Holland* ſort. The lateſt are the bearded wheats. The red pirks, or red *Lammas*, come in between; but this is governed in a great degree by the time of ſowing, the ſoil, the aſpect, and their ſtanding nearer or farther from the ſouth. When wheat is ſtruck or damaged by inſects, and the ſtraw becomes ſpotted and hardened too ſoon, ſo that the uſual aſcent of ſap or nouriſhment is checked and ſtopped, the corns rather decreaſe than increaſe in their growth; or, when the kernels are by mildews glewed, or, as it were, bound in their hoſe, or ſheath, ſo tight, that they cannot enlarge and grow bigger; I ſay, then we commonly reap ſuch wheat very forward.

In the next place, when wheat is fallen down, eſpecially when this happens while the ſtalk is green, as it often does by the violence of winds, the continuance of great rains, or by the largeneſs of the crop, then the ſap cannot aſcend to feed the ear, and is enough to oblige us to reap it the firſt of any, leſt ſuch laid wheat grow as it lies; I mean, leſt the kernels ſprout in the ear, by wets or the dampneſs of the ground, that in this poſture they lie very near to.

When

When wheat is much ſtruck or mildewed, ſome reap it as ſoon as it is full kerned; for, as I ſaid, the longer it ſtands, the ſmaller it gets, as has been proved by letting a piece of it ſtand, after the reſt was reaped. The ripeneſs of wheat is eaſily known to the meaneſt ruſtic, by the whiteneſs, brownneſs, or redneſs of the particular ſorts of ſtraws and ears, and by rubbing out the kernels of an ear in one's hand. However, none ought to be reaped till the milk is out, and the corns be hard.

Reaping wheat early, gives the pirks and *Lammas* ſort a bright golden colour, which is ſo agreeable to a wheat buyer, that he will give more for ſuch, than if it ſtood till full ripe, becauſe it will weigh heavier, and yield better flour. But when it ſtands too long, it becomes a greyiſh red, and its flour will be deadiſh, unpleaſant, and lighter. A farmer reaped it almoſt greeniſh, and ſo early, that many told him he would ſuffer by it; but he ſaid he never had finer coloured wheat, nor any that ſold better at market. The ſame I experienced laſt year, 1741, when my chief reaper told me it was not ripe enough to cut; but, as it happened, there was not a brighter finer ſack of wheat brought to *Hempſtead*. Indeed, had it been reaped greeniſh, the kernel would be apt to ſhrink, be guttery, and more

muſt go to fill the buſhel; yet, if this is not done in too great an extreme, it is better ſo than when it ſtands till it is too ripe, for then the kernels will loſe their bright colour, get a thick ſkin and blackiſh ends, and be very apt to ſhed at reaping, binding, and carrying; and, if wheat is to be ſown on the ſame ſpot of ground for a ſucceſſive crop, ſuch ſhed kernels, very probably, will beget ſmutty ones. Accordingly, it is our general method in *Hertfordſhire*, to begin cutting before the wheat is full ripe, not only for the foregoing reaſons, but alſo for enjoying the weather in its longeſt days; and where a farmer has great quantities of this grain, that he may get to the end of his work in due time. Others make it their rule to begin reaping if the wheat is clear of weeds and ſtraw dried; then they reckon it fit to bind as ſoon as reaped. Others venture to reap when they think the wheat is ready, though the weather is diſcouraging, becauſe, when it is cut down, there is a greater opportunity of getting it into barn than when it is ſtanding.

Previous to the moving wheat-ſheaves to the barns, a mowſtead ſhould be prepared to lay them on, for preſerving them from the damp of the earth, and in ſome meaſure from the power and miſchief of rats and mice; for which purpoſe,

poſe, nothing exceeds a foundation of furzen or whin faggots, with a thin layer of ſtraw over them, becauſe theſe are ſo prickly, that it is impoſſible vermin ſhould make any lodgment therein, or without great pain walk over them, which conſequently ſecures the bottom ſheaves that lie in moſt danger, from their deſtruction; and the better to do this, we place our firſt layer of ſheaves almoſt upright, and very cloſe to one another; on the ears of theſe, a ſecond layer or row muſt be placed a little ſloping, and ſomething ſhort of one another, with their ſtraw ends outermoſt, and ſo on, with this caution, that the whole body, or mow, of wheat ſheaves, lie eighteen inches, or two feet ſhort of the barn-boards or wall, in order to give ſufficient room for a man or cats to go round the ſame at pleaſure.

Thus, by laying the firſt row of ſheaves upright, and the reſt in a ſloping poſture cloſe together, with their tails outward, the whole mow will lie tight and compact, and give the air an opportunity to get in, and very much dry away the dampneſs that may ariſe from wheat-ſheaves being got in too ſoon, or lying in too cloſe a body. But where furze or whins cannot be had, thorn faggots and ſtraw laid over them, or fern, or ſtraw alone, laid as a bed about two feet thick, muſt ſupply the place of furze.

However, in caſe the weather continues ſo long wet that you are obliged to get in your wheat-ſheaves damp, make a hole in the middle of each bay or mow, by letting an empty hogſhead, barrel, or kilderkin, or four ſquare boards tacked together, remain in the middle of it, till the corn is up to its top, then put it up, and in this manner leave a hollow place or dry well, where, if a mouſe falls into it while the ſheaves are ſweating, it will ſuffocate it.

Thus corn cut unripe, or inned not thorough dry, will be delivered from the miſchief which generally attends dampneſs, and cauſes ſometimes a mow to be on fire, or breeds mouldineſs, or rots both grain and ſtraw, or at leaſt gives the wheat an ill ſcent and coldneſs. In either of theſe caſes you muſt expect the leſs price, for the firſt thing a wheat buyer does, is to thruſt his hand into a ſack, and if it feels cold or damp he refuſes, and goes to another, or elſe leaves a diſcouraging offer behind him.

A ſtack, or rick of corn or hay, ſhould have a foundation of furze, thorn, or other faggots; the lower and moiſter the ground, the higher it ſhould be raiſed, even from one to three feet; for, if the bottom of a ſtack was to lie very near a watery earth, two or three feet of its lower part may be ſpoiled. A ſtack or rick is laid in form of a long ſquare, with its top in ſhape of an old-

faſhioned

faſhioned houſe's roof, for the water to fall quickly off. In this ſhape wheat-ſheaves in the beginning ſhould be laid with their ſtraw ends outward all the way up, to let in the air to the ears of corn, and keep wets and vermin from entering. And the better to prevent rains hurting our ſtacks of corn, we commonly lay peaſe, or beans, or only ſtraw, on the top-ridge part of it, and then timely thatch with ſtraw over all; for, in this caſe, barley, oats, or thetches, are not proper, becauſe either of theſe will ſtain and damage the wheat kernels, that is, ſo mix among them, that they cannot well be got out.

And in this form it is that we ſtack wheat-ſheaves, barley, oats, peaſe, beans, thetches, clover, ſainfoine, and natural hay. But to keep any of theſe corns the more ſecure from accidents, ſome lay them on a frame of joiſts with fixed boards over them, ſupported by ſtone, brick, or oaken pillars, of two feet, or more, high, with ſquare caps of ſtone or wood upon each, to hinder the aſcent of rats, mice, and other vermin, and prevent the miſchief of damps and vapours of the earth. But if the pillars are made of oak, then we nail pieces of tin about their middle part, to hinder the claws of vermin's getting up. Others will lay their corn in a long ſquare ſtack, placed on a frame of wood, erected

ſo high, that carts and waggons may ſtand under it, and ſo make it ſerve for both uſes.

Of the management of Wheat after reaping.

As wheat is cut, its reaps are laid even one by another in flat rows, for the ſun to harden, and the air to plump the kernels in the ears, dry up the ſap in weeds, and ſtiffen the ſtraw: here then depends a great deal of the farmer's profit; for if he enjoys a kind time in, and after reaping, till he inns his corn, it will fetch conſiderably more than if it was waſhed by rains, to a degree of its growing in the ear; yet one or more moderate ſhowers have often proved an improvement to the grain, by enlarging its body, meliorating its flour, and cauſing the ears to part with their kernels and their chaff much eaſier than when no rain happens. However, to provide againſt the worſt, all judicious farmers will keep hands ſufficient in readineſs, that in caſe too much rain falls, they may be employed in time, to raiſe the heads of the wheat a little from the ground, by laying them as hollow as poſſible for the air to have room for entering between and drying them ſooner: ſuch management oftentimes puts a ſtop to the begun growth or ſprouting of the wet kernels. But we never wholly turn the ears unleſs there be great neceſſity, becauſe, by ſuch turning, the golden colour of the wheat will be much

much diminiſhed, and a waſhed, pale, dead one lodged in its room. However, after one, two, or three days or more, letting the wheat thus lie abroad in rows or ſwarths, in a fine day, after the dews are diſperſed and gone, we bind up the wheat in ſheaves, and then ſhock them in ten, twelve, fourteen, or fifteen to the ſhock, to ſtand in a double row, made by placing one ſheaf againſt another, to farther harden the kernels, and dry out all humidity, that otherwiſe might remain in the ears, ſtraw, and weeds; but in caſe there be danger of rain, then many will take a ſheaf at each end of a ſhock, and ſpread them over the tops of the reſt. Others will never cap at all, ſaying, if it rains and wets at one time, it will dry another; and when all the ears ſtand up in the air, the danger is not ſo great but that many will venture it. In *Middleſex* and *Kent*, they generally bind as they reap, in order to preſerve that fine colour, which the ears, by lying on the ground, often loſe, and alſo becauſe they reckon it cheaper; for when they hire reaping by the acre, as moſt do in theſe parts, it is done for ſix or ſeven ſhillings each; but if wheat lies firſt ſome time on the ground (as is conſtantly done in *Hertfordſhire)* before it is bound up, the trouble and charge will be the more; for the *Hertfordſhire* farmer refuſes to reap and bind it preſently, leſt the moiſture in the corn, ſtraw,

and

and weeds, be bound up in the ſheaves; and accordingly, this ſometimes happens, ſo that the middle part of ſuch ſheaves will be yellow and hoary, and give an ill ſcent to the reſt of the grain. However, this is a general rule with all good farmers, that to let wheat ſtand long enough abroad to have its due cure, is the beſt way, for the following reaſons; viz. firſt, by ſtanding ſo abroad, the kernel gets plump, and therefore will fill the buſhel the better; and, though then it becomes thorough dry by keeping, yet there will be a little ſwell and improvement both in the ſkin and flour. Secondly, If the corns had a bright colour by being early reaped in good weather, by ſtanding dry ſome time abroad, it will improve it, and cauſe it to fetch the greater price. Thirdly, All ſuch wheat as has had its due cure in the field, will certainly thraſh eaſier, part with its chaff quicker, and grind better, than that inned too ſoon: and when it is thus prepared by a ſwell, a good colour, and made eaſy to thraſh, handle well in a ſack, and grind freely, then it may be relied on to ſell for the moſt money at market. But when a long rainy ſeaſon happens in harveſt-time, notwithſtanding the ſheaves ſtand erect in ſhocks, and even when they are capped, the whole ſheaf may be wet through and the ears grown: in this caſe we can only unbind and ſpread them on the ground again

for

for drying by finer weather, till they can be bound up a ſecond time. However, as the weather may continue ſo long rainy, that wheat cannot be got in dry, there are ways and means to ſupply the defect in a great meaſure by the following methods. But, before I farther proceed, I have to obſerve here, that in ſome places, when wheat is in danger of being ſpoiled by the rains, they lay it up in one or more parcels in the field, and thatching or otherwiſe, in order to bring it out and expoſe it afterwards when the weather is ſettled for fair: and, thus it will paſs through a degree of ſweating, if time enough is allowed it, to its great advantage; for ſuch ſweating abroad will prevent its much ſweating in the barn, which is the worſt place to ſweat it, becauſe its cloſe lying here (if the wheat is dampiſh) ſometimes cauſes it to be muſty and bad coloured. Make bands to bind the ſheaves in a dewy morning, they will not break near ſo ſoon as if made in a ſun-ſhiny dry time.

Of curing damp or wettiſh Wheat.

When great and long rains happen at reaping-time, and when wheat lies on the ground, or ſtands up in ſheaves, the grain commonly becomes very much damaged by the loſs of its colour, getting a thick ſkin by the flour's ſticking and being glewed, as it were, to it,

it, by repeated wets, which ſometimes cauſe the kernels to ſprout, and retain an ill ſcent, to the great hindrance of its making good bread, or pudding, &c. and by obliging the farmer to take a poor price for it at market. Now, though it is a maxim, that corn had better be ſpoiled in the field than in a barn, becauſe there is the more chance in the former for its recovery than in the latter; yet, by the ſeveral ways I am going to mention, it may be ſaved from ſpoiling in either of them; to which purpoſe I ſhall begin with what a farmer at *Kenſworth* did in ſuch a caſe.—*Firſt*, He ſpread his wet ſheaves of wheat over the hair-cloth of a malt-kiln, and leiſurely dried them in parcels, till he had his whole quantity cured to his deſire; and it ſo well anſwered his end, that he ſold the ſame for two or three ſhillings in a ſack more than his neighbours did theirs, that did not take this method; for the corns did not ſuffer by the little fire that was made for them, becauſe the chaff in the ears defended them from the ſmoke and too much heat. *Secondly*, or a ſecond way is, as it is practiſed about *Hertford* town and many other places, to cut off all the wet ears, and give them a ſun-heat on a hair-cloth, over a wire malt-kiln, which is beſt done by laying on the ears of wheat as ſoon as the malt is off, and the fire is extinguiſhed; for the remaining heat will dry them regular and ſweet.

A third way, is to dry wet ears of wheat better on a cockle oaſt-kiln; this kiln is uſed for drying malt, hops, or wet ears of wheat, &c. in the ſweeteſt manner; and, for theſe reaſons, it gets more and more into uſe with thoſe that value the pureſt commodities before the worſt ſorts, and is rejected by few or none, except it be for drying too ſlow for their mercenary profit; that is, it does not by its violent ſudden heat blow up or extend the malt kernels, till their ſkins are ready to burſt, and ſo fill the buſhel with fewer of them than if they were dried by a regular gradual heat, which this excellent kiln will do by the fewel of ſea-coals confined and burnt in a cheſt or trunk of four broad caſt irons, an inch or more thick, whoſe ſmoke is made to paſs about a ſpacious room through flues or chimneys of brick built along the inſide walls of ſuch a room, near the kiln: by which means the air of the place is ſo heated, as to dry the malt, hops, or wet ears of wheat, &c. by as gentle a fire as can be deſired, even to ſo moderate a heat as that of the ſun. I have ſeen more of theſe in *Kent* than any where elſe. Here, if the wheat ears have their due and timely turnings, they will meet with ſo ſweet and dry a cure, that they will keep a long time in good order. But, if naked wheat kernels were to be dried on common malt-kilns, you may expect them to be ſmoaked or tainted by

by the fire of the place, without a great deal of care, that they will hardly ſell in a market. A fourth way is, to cut off all the wet ears, and ſpread as many of them on a barn-cloth as it will hold at a time in a thin manner, for the ſun and air to dry them abroad; and, when one parcel is done, another may be lain out, and ſo on. A fifth way is, in caſe the weather prove rainy, to ſpread the ears very thin all over the barn-floor, and ſet open every door and the gates belonging to the ſame, that the ſun and air may have a full freedom to paſs through and dry them. A ſixth way is, if you cannot inn the ſheaves of wheat dry, but are obliged to mow them wet, put ſome dry ſtraw between the layers, and it will drink up the moiſture ſo as to prevent a great deal of miſchief. How ſerviceable then the knowledge of theſe ways may prove to many farmers, and to the nation in general, I leave to my reader's conſideration, who, if he is one that ſows a quantity of wheat, has no reaſon to grudge the price of my book, if it was only for this information; becauſe a man may be ſo catched by rains, as to have almoſt all his wheat ſpoiled, and then out of what muſt he pay his rent and get a livelihood, ſince one year's crop of wheat is that which ſhould pay it for two years, and which, by ſome of theſe means, may be ſaved in a great degree from that damage or ruin

that

that might otherwiſe attend it; being what no other author, in ſuch variety, has ever diſcovered before.

If you reap wheat when the kernel is ſoft, let it remain in the field long enough to harden, and have a care you do not inn many weeds with it, for theſe will keep the wheat damp and make it ſtink. In caſe your wheat is wettiſh or damp when you are obliged to bind it, do not cap it, for, if you do, it will cauſe the ears to grow as it ſtands in ſhocks; but when it is dry and you fear rain, then you may ſafely do it. It is the firm opinion of a great farmer, that no ſheaves of wheat ſhould be capped, unleſs they ſtood in *Welch* ſhocks of twelve in all; that is, in two rows againſt each other, five in a row, and capped by two ſheaves on their top; for then the rows are ſhort enough to be covered.

The Management of getting in Wheat in Vale Lands.

In the northern parts, they reap their wheat with the hacked ſickle, as is done in *Hertfordſhire*, contrary to what they do in many other countries, where they prefer the uſe of the ſmooth-edged reap-hook. In *Hertfordſhire*, our women are above handling this tool, and have been ſo for theſe forty years paſt, as thinking it too ſlaviſh an inſtrument for their ſex. But in the northern parts, and in many others in *England*, the women

women reap ſometimes in an intire company of themſelves; but, for the moſt part, they work among the harveſt-men, and ſo become a mixed company; becauſe a woman cannot ſo well bind up a ſheaf as a man. Thus women make themſelves help-mates indeed, and of very great ſervice to farmers, by helping them to inn the fruits of the earth in due ſeaſon: and ſo much does cuſtom naturaliſe women to this labour, here, that even the ſervant maids in general, as well as farmers wives and daughters, willingly engage in this ſort of field-work, and find, by yearly experience, that nothing adds better to their health, than this, and other bodily fatigue, which they are conſtantly brought up in the exerciſe of, and inured to in the farming buſineſs. It is therefore obſervable, that, in this country, the inferior ſort of women, for the moſt part, enjoy a freſh-coloured countenance, and a ſtrong, large body, conſtantly eating no other bread than that made with flour and the bran in it, as it comes ground very ſmall from the mill, or oat-cakes, inſtead of it; which laſt ſort a little further north, they eat altogether, as having little or no wheat growing near them. And it is here, they ſay, in jeſt, their women never die; as much as to ſay, they live to exceeding great ages, by eating no other ſort of bread than oat-cakes, becauſe they are very light of digeſtion, and clog not the ſtomach, like the fine wheaten bread.

Here

Here alſo they are of opinion, that their oaten-bread, or cake, is a great antidote againſt the ſcurvy, and accordingly impute the enjoyment of their health to a good old age, very much to its ſalubrious qualities. But to return from this digreſſion, to the ſubject in hand; I have further to add, that, in this country, they reap and bind as they go, by every reaper's making his own ſtraw-band, and tying up the wheat in ſheaves at the ſame time, which they immediately ſhock and cap afterwards, as they do in *Kent*, and many other places. Now ſome I know will wonder, why the wheat is ſhocked and capped ſo ſoon, in fine, dry weather. In anſwer to this, they give this reaſon for it: That, by ſetting up eight ſheaves and capping with two beſides, ten in all, or ſometimes twelve in all, the whole ſhock is better preſerved from the pernicious power of miſts and rains, than thoſe larger ſhocks of fifteen ſheaves can be, as the common mode is in *Hertfordſhire*, which I think a very wrong one. It is alſo in this our ſouthern county, that we ſeldom or never cap as we ſhock, nor afterwards unleſs we foreſee the danger of rains; and to prove that we are wrong in *Hertfordſhire*, and they right in the north, let it be conſidered that, after a ſhock of fifteen ſheaves is made and ſtands ſome days without capping, if it is capped afterwards ſuch late capping cannot ſettle and ſit

ſo cloſe, as that capping does, which is put on as ſoon as the ſhocks are ſet up. But, for further explaining and illuſtrating the great benefit of this north country way of reaping, binding and ſhocking at the ſame time, I ſhall make the following obſervations, viz.

Firſt, By ſuch haſty binding and ſhocking, the wheat is preſerved in a great degree from the damage of damps ariſing from the ground, where if it lies ſome days in reaps, as the *Hertfordſhire* way is, it generally cauſes the wheat to loſe its colour in a great degree; and, if a wet ſeaſon attends it, then it is apt to grow and ſprout to the farmer's great diſadvantage, for ſuch ſprouted kernels ſeldom become thoroughly dry afterwards, becauſe the ſprouts retain ſuch a moiſture as will not dry out, unleſs by a great force of the ſun's heat, and wind, which the wheat is very much deprived of, by lying in incloſed fields: for here damps and wets remain ſo long as to occaſion the wheat to ſprout in a very little time, and then it is as difficult to dry it again; I may ſay, much more difficult to dry it again, than when it lies or ſtands in open common fields. Now here may ariſe an objection, that if wheat is bound up in a dewy morning as ſoon as reaped, it will in courſe lodge a great dampneſs in the ſheaves. To clear this objection, I have to offer, that though dews oftentimes

times fall in great quantities, and wet much, yet, as they are for the moſt part only a ſuperficial moiſture, they are ſoon dried away, by the heat that ſuch early and cloſe ſhocking and capping will produce. Their way therefore here, is, not to begin reaping ſo ſoon in a morning as we do in *Hertfordſhire*, but they hold working later at night than we do, becauſe the evening damps are not regarded by them. And, if the dews are very great in the morning, they let the wheat lie ſpread in bands, till the ſun and wind in ſome meaſure dry it up; then in the beginning of the heat of the day, they bind up, ſhock, and cap, as I ſaid before. But the great benefit of this excellent management is further proved by what follows.

Secondly, By ſuch early binding, ſhocking, and capping, the degree of heat is retained and increaſed in the ſheaves, when they are ſo bound, ſhocked and capped, which certainly is a great means to preſerve the fine, natural, bright colour of the grain, ſo much valued by wheat-buyers; who well know, that, if wheat is of ſuch a good colour, the flour of it muſt conſequently be very ſweet, dry, and white, and, on that account, fetch more money in a market, than that which has loſt theſe perfections, as that wheat generally does, that lies ſeveral days in reaps on the ground.

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Thirdly, Again, this early way of reaping, binding, ſhocking, and capping, very much prevents the pilfering gleaner from ſtealing wheat in the field; for, while it lies in looſe heaps on the ground, it is more than ordinary expoſed to the rapine of the field-enemies, who take all opportunities of robbing the farmer, but moſt of all when wheat lies thus expoſed; for, when it lies thus flat on the ground, and if they come in the night-time and take a little from each reap, it is almoſt impoſſible to miſs it. But when it ſtands in ſhocks, the theft can be much better diſcerned, where they pull out or cut off wheat-ears, for here the gleaners generally carry a pair of ſciſſars by their ſide, and a bag before them to put in the ears they cut off from the ſtraw, in order to lighten their burthen, for many times they are obliged to go a great diſtance from home. But ſometimes, and too often, they make an ill uſe of theſe ſciſſars, by cutting off the ears of the bands privately, that hang within ſide the ſhock out of ſight, and alſo from the inſide of the ſheaves, which cannot preſently be eaſily diſcovered. And ſo prone are gleaners, in theſe parts, to abuſe the farmers in robbing them of their corn, while it ſtands in ſhocks, that many of them are provoked to let the poor of other pariſhes come into their fields to glean, by way of revenge: which they would not do, if their own

own poor would but behave themſelves honeſtly. A certain gentleman that held ſome of his own land in his hands, for furniſhing his houſe with bread, and other neceſſaries, had ſeveral ſhocks of wheat entirely carried off his land, in one night's time, by thieving gleaners, who are ſaid to commit this piece of villainy for two reaſons. One was, becauſe they had a pique againſt him, on account of his niggardice, as they termed it: the other was, becauſe his ſhocks ſtood at a great diſtance from any houſe, which gave them an opportunity to carry off their booty, with the more ſafety. Likewiſe, by this way of reaping, binding, ſhocking, and capping, farmers are emboldened to let their wheat ſtand a week or two, in fair weather, in the field without uncapping, that it may paſs through a ſmall fermentation; for, in this northern part, they never uncap, unleſs great rains indeed force them to it; and then it is, becauſe the two capping ſheaves are quite wetted thorough, which to dry again, they ſpread on the ground, and ſo perhaps the wetted ſheaves of the whole ſhock. Thus by letting wheat paſs through a ſmall fermentation, while it remains cloſely ſhocked in the field, it will ſweat the leſs in the mow or ſtack, and be delivered from the dampneſs of weeds, and the power of their pernicious heats: for if wheat, by any extreme or unnatural cauſe, ſweats too much in the mow or

ſtack, it in courſe leſſens the brightneſs of that colour that ought with our greateſt care to be preſerved: this is not an inſignificant item, if duly conſidered, for it is of great moment to the farmer, to the buyer, and to the eater's intereſt, to enjoy wheat, and its bread, in its beſt condition; which cannot be done, unleſs a right management attends the cut down wheat in the field, for, according to the common ſaying, a great deal happens ſometimes between the field and the barn. Wheat, therefore, ought to ſtand a week at leaſt to ferment in ſhocks, to cure both that and weeds that may be among it; then there will be no manner of danger of mow-burning the wheat, as it often happens to be, when inned too ſoon, to the farmer's great damage. I muſt indeed own, where a very ſmall company of men are, who reap their wheat off four-thoroughed lands, or what is called two-bout ſtitches, as many do in the *Chiltern* country of *Hertfordſhire* and other places: there, I ſay, reaping and binding at the ſame time cannot be ſo well done as in vale or other broad-lands, becauſe, in theſe two-bout lands, each man cannot reap more than one at a time, and therefore cannot perform this without a great deal of trouble more than ordinary; accordingly it is ſeldom or never done. Nor can ſuch reaping and binding at the ſame time be rightly done in three-bout lands, becauſe the

reaper

reaper muſt go too far to get enough to make a ſheaf before he binds it. But, in four-bout lands, it may be done by two people working on the ſame land, at one and the ſame time, by laying bands on the ridge, and binding up directly, or as they come back, which laſt is the quicker and beſt way; and when, they here ſhock their wheat-ſheaves, they take them from off the two outermoſt of the three lands, and place the ſhock-row upon the middle land, that the cart may have full room to take and carry them off.

The great importance of curing cut down wheat in the field, is eaſily known to the meaneſt ruſtic, becauſe on the goodneſs of this golden grain depends its ſale; and if the farmer fails in this, he fails in his principal prop: for, by one year's wheat crop, he muſt pay two years rent, that is, the year the wheat grows in, and the third or fallow year, when nothing grows on the fallow land, becauſe it is under a preparation for the next year's wheat-crop. But admit he has a plentiful crop of wheat, and this wheat proves ſmutty, or abounds with pepper-wheat, or with the ſeeds of weeds, it will in courſe fetch a ſmall price at market. But when to theſe, or any of theſe misfortunes, another is added of inning a wheat-crop that has growed or ſprouted in the field, after being cut down, and ſuch wheat has loſt its fine bright colour, as is wet or damp, then

it will fetch a very low price in compariſon of that which is got in clear of theſe damages. If a buyer takes damp wheat, it muſt be ſold at an exceſſive low price. But in caſe the beſt wheat ſells at ſo mean a rate as three ſhillings a buſhel, as it did in *September*, 1742, what chance has ſuch a farmer to pay his rent, by the time his month or harveſt-men, his taxes, his yearly ſervants wages, his butcher's bill, and a thouſand other incident expences are defrayed; and above all, when he has loſt a conſiderable ſum by the bad huſbanding of his wheat-crop, in the manner I have been deſcribing. Surely ſuch a farmer is in the high road of breaking? Yet this was partly the caſe of ſeveral in the weſtern part of *Hertfordſhire*, and I am afraid in many places elſe, in the year 1742, who ſuffered very much by their miſmanaging their wheat crop in the field, after it was cut down; for they were ſo very eager of inning it, that, after it had lain ſeveral days on the ground in open reaps, they bound it up, without capping the ſhock afterwards, and hurried it in damp, though it proved the fineſt harveſt (bleſſed be God for it) that ever I knew.

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Of horſes, carts, and waggons for harveſt work.

All theſe, or ſome of them, are ſo neceſſary, that there is no getting our harveſt corn in without them. Where incloſed fields lie about the houſe, and on a level, the carriage of corn may be performed in the moſt expeditious and cheapeſt manner by only carts, as ſeveral do in *Hertfordſhire*, &c. but where fields lie at a diſtance, and there be hilly ground in the way, then the waggon is, of all other carriages, the moſt convenient; becauſe this can be drawn much ſafer down a hill than a cart, as not being ſo liable to be overturned; can be better ſtopped by chaining up a wheel, the thill-horſe works in more eaſe and ſecurity, and a greater quantity of corn is brought home at a time, than is commonly done by a tumbrel cart. Of theſe waggons there are ſeveral ſorts. About *Sandwich* in *Kent*, they make uſe of long ſtrong hutch waggons to do all ſorts of work: In another part of that country they have a light waggon with very low wheels, made ſo narrow in the middle, that they can turn in a very little room, and are the ſafeſt ſort I ever ſaw for drawing loads down and along the ſides of hills. In *Suffolk* and *Norfolk*, in their heavy ſandy land, they work the lighteſt waggon that is, becauſe almoſt its whole body is made with round ſticks. In *Hertfordſhire* we travel with

with a large, cloſe, high ſort. But in many parts of the weſt of *England*, they uſe neither cart or waggon, becauſe their narrow, rocky, ſmooth hilly roads, and other grounds, will not admit of their draught, ſo that they are forced to inn all their corn on horſes backs. The next thing I have here to take notice of, is the employing of theſe; to do which, I ſhall ſhew a great deal by a little; and that is, how cheaply a ſmall farmer managed the carrying his corn in harveſt. His incloſed field lay on a level about his houſe, and having only three carts and four horſes, he employed one cart in the field for loading it with wheat-ſheaves, another driving on, and a third at home emptying. That in the field had one horſe in it, that a driving, three, and that cart in the barn was emptying, by its ſhafts reſting on a truſſel.

CHAP. XII.

OF THRASHING AND CLEANING WHEAT.

WHEAT, barley, oats, beans, peaſe, and other grain, are near got as dry, as they will be, in the mow, in the cock, and in the barn; and as the field work is by the beginning of *October*, for the moſt part, over, and the weather

weather commonly froſty and ſnowy, the farmer in courſe, for theſe, and other reaſons, is obliged to employ his hands in thraſhing out, and cleaning corn for market; a work that requires a good workman; for though corn is got in dry, yet if the taſker cannot clean and free it of the ſeeds of weeds, and other trumpery, the maſter muſt conſequently be a loſer. On this account I believe, I may affirm it for a truth, that there have been two or three ſhillings loſt in five buſhels of wheat, for want of a ſkilful diligent workman's cleaning it thoroughly well; and therefore it is that many of our *Hertfordſhire* farmers will give a good taſker ſeven pounds a year, before they will a bad one five; becauſe the want of the corn's being duly cleaned may thus amount to a great ſum in one year's time; for when a crop of corn has the ſeeds of weeds mixed among it, or if it is ſmutty, or abounds with pepper-wheat, (which is often unavoidable in ſome ſoils) then the art of the taſker is to get out all, or moſt of ſuch ſeeds of weeds, and clean it from many of its ſmutty or pepper-wheat kernels. To do which, there are ſeveral ways practiſed in different countries, as I ſhall by and by give an account of; and the rather, becauſe no author whatſoever has hitherto done it, although it is a moſt material article in the art of good huſbandry, and ſo neceſſary, that our fineſt

bread cannot be made in the pureſt condition, unleſs corn is truly freed from the mixture of the many pernicious weeds that often grow among it; ſome of which, as the crow garlic, or wild onion, the melilet, and ſome others, give the wheat ſuch a nauſeous twang and unwholſome quality, that the bread made from it, is very much damaged; and ſo are gruels, puddings, and other things made from thoſe oats, where ſuch filthy ſeeds of weeds have grown amongſt it; and yet the darnel, the burr, the crow-needle, and others, are often ſeen among grain as it ſtands to be ſold in our markets, which are chiefly propagated by the old *Virgilian* promiſcuous way of ſowing the ſeeds of corn, that admits not of getting the weeds all clean out of crops of grain as they grow in the field. Hence it was that there was a neceſſity for the invention of the drilling huſbandry, becauſe it gives the farmer an opportunity to extirpate and deſtroy the growth of the ſeeds of weeds amongſt corn, by hoeing the interſpaces and vacancies between its rows or drills, the greateſt part of the ſummer, when the ſap in ſuch weeds is in its ſtrongeſt motion or circulation, and thereby the more eaſily killed. On this account it was, that the drill-plough and horſe-break were contrived, and get more and more into uſe, for preventing the vaſt charge of weeding corn by the weed hook, tread-

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ing it down to perform the ſame, and then leaving the weeds to make a ſecond growth the ſame ſummer, and doing their miſchief when corn is at that heighth that they cannot be come at; ſo that corn thus ſown in the random faſhion, is inevitably liable to have the ſeeds of weeds grow among it, to the farmer's great prejudice, and the more, if his workman taſker does not get them from out of the corn he is to make ready for a market ſale; and that he may be the better capacitated for doing it in the greateſt perfection, I ſhall proceed to give an account of the firſt ſtage of it.

There are differences in thraſhing corn. In *Middleſex* they differ in this work from *Hertfordſhire*, becauſe, as their country is ſituated near *London*, and they make good part of their rent by the ſale of their wheat-ſtraw, they are very careful to preſerve it as reedy or long as they can, in order to keep the ſtraw in its original body as it came out of the field; ſo that the length of their ſtraight ſtraws, when bundled up in a truſs, will be about five feet or more: for this purpoſe they ſpread their unbound wheat-ſheaves, and lay them flat on the barn-floor, with one row of ears oppoſite to the other; when this is done, the taſker is ready to make uſe of his flail, of which there are three ſorts; one that is capped with iron at the end of the hand-ſtaff, and turns

a ſwingel

a ſwingel by an iron ſwivel, that makes it a very durable one, but the iron and the wood do not rightly agree together, for the iron is apt to cut and wear away the wood too ſoon. The ſecond flail is made with a capping of horn, that is generally allowed to be the beſt of all others, becauſe this is neither too hard nor too ſoft, and laſts a great while; the third flail is made with a piece of bent aſh, and is the commoneſt ſort of capping that is made, as being the cheapeſt of all others. The flail being ready, the taſker, as I ſaid, throws his wheat-ſheaves from off the mow, and lays them flat on the barn-floor, with their heads and ears againſt one another, ſo that when two rows are thus completed, he falls to work, and if he is acute at his buſineſs, he will bring up the ſwingel as cloſe to his head as he can, by which, with the more facility, he is enabled to ſtrike downright ſharp ſtrokes with great quickneſs, for beating out the wheat kernels in the moſt compleat manner; while a bad workman who, through ignorance, may bring up his ſwingel in a half roundiſh ſwing, will be a conſiderable time longer about his work, and not ſo well able to get out all the wheat.

Now the *Middleſex* farmer, beyond all others in *England*, ſtands moſt in need of an honeſt, diligent, and ſkilful workman, for thraſhing out his wheat, becauſe here he is obliged to preſerve his

his ſtraw in its longeſt and ſtiffeſt condition for a *London* market, inſomuch that it muſt appear in a hard, ſtraight, reedy poſture, or elſe he may carry it home again; but this they are not wanting in, eſpecially when a truſs of wheat ſtraw, weighing thirty-ſix pounds, fetches eight or tenpence, as ſometimes it does, at the higheſt price, and at the loweſt, a groat a truſs: And that their wheat-ſtraw may anſwer theſe purpoſes, the taſker dares not make uſe of thoſe ſweeping horizontal ſtrokes, in the time of his thraſhing, as is commonly done by the *Hertfordſhire*, *Buckinghamſhire*, and many other thraſhers; if he does, he will beat up the ſtraw in puckers, break it, and render it ſo ſoft and weak, as to be refuſed at market; to prevent this, he makes uſe of only his two hands to ſhake the looſe kernels out of the ears and ſtraw, and thraſhes on till he thinks all wants turning, then with the help of the hand-ſtaff and one hand, he turns the flooring, leaving that ſtraw with its ears uppermoſt, that before lay undermoſt, but ſtill preſerves all in the poſture it firſt was put in. Next he thraſhes away again, till he thinks it is enough done, and then with a fork he ſtirs and ſhakes all the ſtraw, to let the remaining wheat-kernels fall out. When the thraſhing is thus finiſhed, the next thing is to bind the ſtraw up in truſſes, which the workman does directly from off the barn-floor,

floor, as the ſtraw lies in length, and with bands made of the ſame, tucks all up in a very tight manner, ready for loading, and carrying it to *London*; which theſe *Middleſex* men do in a more complete way, than all others that I ever ſaw, for theſe bind ſometimes a load and a half, or more, on one of their large carts, which is fifty four truſſes; a number they could not carry, were it not that the roads are mended by turnpikes, and made, for about ten miles round *London*, ſome of the beſt in *England*.

Now here I have to remark, that wheat thus thraſhed in *Middleſex*, is the fouleſt thraſhed of any in *England*, becauſe, as I ſaid, they are obliged to thraſh it as it lies always one way, as not daring to break the ſtraw more than needs muſt, by any croſs ſtrokes of the flail, according to the practice, I believe I may ſay, of all other counties in this nation, as the beſt way of all others to clean the ears of their kernels; for by firſt throwing downright ſtrokes, and then ſweeping or croſs ones, the flail ſtrikes thoſe ears that were covered and defended againſt only downright ſtrokes, as I ſhall more particularly obſerve by and by. However, though the *Middleſex* farmers loſe a good deal of wheat this way in a year, for want of clean thraſhing it out, the poultry kept in the inn-yards of *London*, find ſometimes a pretty deal among the ſtable litters; and the more,

more, when they take ſome of the ſhort ſtraws with their ears, from off the heap or thraſhed corn, and tuck into the body of the truſs when they find it a little too light. But before I quit this paragraph, I ſhall touch on a matter as it happened to one of our *Hertfordſhire* thraſhers, as he was working in a barn in *Middleſex*. This man, among others, went up out of our parts into this at mowing ſeaſon, as is the conſtant yearly cuſtom of great numbers of men out of *Hertfordſhire* and *Buckinghamſhire*, where ſome of them ſtay a month or two together, for mowing graſs and making hay; but it ſometimes happens, that great rains fall frequently in the time, which obliges the farmer to find out work for ſome, to keep them employed, leſt they leave him, and he want them afterwards: For this purpoſe, one of theſe meadow farmers, who ploughed ſome grounds every year, ſet the man to work to thraſh wheat, and accordingly he began, and proceeded as he did in *Hertfordſhire*, but as ſoon as the maſter perceived it, he fell a railing at him, and telling him he had better give him ſome ſhillings a day to ſtand ſtill, rather than go on as he did: on this the thraſher aſking the reaſon, the maſter ſaid, becauſe he would ſpoil all his ſtraw, by the ſweeping croſs ſtrokes that he made. Then the man followed his directions, and thraſhed out the wheat by only downright

ſtrokes of the flail, as the *Middleſex* way is. In ſhort, the *Middleſex* farmer does not regret the taſker's leaving a pretty many kernels among his wheat-ſtraw, becauſe he cannot well do otherwiſe in this way of thraſhing, for if they thraſh all the wheat clean out, they muſt break the ſtraw and ſpoil its ſale.

The *Hertfordſhire Chiltern* country, and the *Buckinghamſhire* vale country way of thraſhing wheat, is one and the ſame; they only differ in the cleaning of it: in both, it is of high importance to the farmer, to have a long and broad thraſhing-floor; becauſe, in the firſt place, his taſker can lay a greater number of wheat-ſheaves on it at a time, than he can on a leſſer floor, which will ſave him a conſiderable time in preventing him going twice on the wheat mow for the ſame quantity of ſheaves. Secondly, by a large floor, he has liberty to move on backwards and forwards with ſtriking the largeſt ſtrokes, when and where he thinks fit, and it is by ſuch downright and ſweeping blows with the ſwingel, that the thraſher ſtrikes out ſome of the corns almoſt as high as the rafters of the barn, ſo that by the force of his downright, and his ſweeping croſs ſtrokes, he has here the greateſt opportunity of thraſhing out a great deal of wheat in one day, and this in the cleaneſt manner. Thirdly, by the full length and breadth

of

of a neceſſary barn floor, the thraſher can clean his wheat much better than in a ſhort floor; and this becauſe, by the long throw of the caſting ſhovel, the crow-needle, the ſticky ſeeds of that ugly weed the bur, the light corns of that worſt of weeds the darnel, and many other ſeeds of weeds drop ſhort in the long ſpace that is between the thrower and the barn cloth. On this account it is, that I am ſanguine enough to aſſert, that one throw of wheat over a long floor, is better than two over a ſhort floor, as is well known to almoſt all thraſhers; becauſe, by a ſhort throw with the caſting ſhovel, the ſeeds of weeds will be carried in great numbers with the wheat, and but few fall ſhort, in compariſon of a long throw; ſo that in a ſhort throw, there is hardly half that advantage in the cleaning of wheat, as in a long throw. Fourthly, in a long floor there is room for two men to thraſh, to the farmer's greater advantage; becauſe two men can thraſh out the kernels cleaner than one man, by their blows coming quicker and cloſer on the wheat-ears, which beat out the corns with the greater force, confine them more to the ſpot of ground, and get out that chaff which a ſingle flail cannot ſo well do.

Two flails working at a time, break the wheat more at once going over it the firſt time, than a ſingle flail can do, which is very material in

thraſhing this grain; becauſe if it can be thoroughly beaten the firſt time going over it, it requires the leſs trouble afterwards; but if the firſt thraſhing is a ſlender one, it requires the more trouble afterwards; and this is often the caſe of a ſingle flail in a large floor. However, where a floor is of a leſſer ſize, and admits only of one man's thraſhing, I ſay, in ſuch a ſhort floor, one man may do as much, or more, in proportion, than two; becauſe here there is not room for two men to thraſh at a time, and therefore one will be apt to hinder the other's working. When one man thraſhes wheat, he at laſt draws off only a ſingle row at a time, which is tedious; but when two thraſh together, they draw off a double, or the whole flooring of ſtraw at once, and thus do a great deal in a little time.

In the county of *Middleſex* they generally have extraordinary barn floors; in *Hertfordſhire* there are ſome very good ones; and ſo in *Buckinghamſhire*. But I am of opinion that, for the moſt part, thoſe in *Kent* excel. And here I ſhould go on in deſcribing the manner of laying barn-floors for their longer duration, and greater conveniency of thraſhing out corn, but that is rather too long a ſubject, and therefore I ſhall defer it.

We do not differ, in cleaning wheat, from the *Middleſex* farmers, but proceed in all reſpects as they

they do, in the following manner, viz. after we have thraſhed out our wheat, we with a caving-rake, of five or ſix wooden teeth, rake off the offal ſhort ſtraws, and other trumpery, and put it into a caving ſieve, through which we paſs all the kernels that may be among it, and we can get out; and then throw the remaining groſs ſtuff to one place in order to get a heap out of it, and thraſh it out at a more leiſure opportunity. When the wheat is thus cleared of its offal or caving, the taſker ſtands at one end of a barn-floor, and with the broad, light, caſting-ſhovel, he throws it to the other end; when all is done, he ſweeps off what we call the Corals, or thoſe wheat kernels that would not part with their chaff in thraſhing: and then, in caſe the wheat is not thrown clear enough of the ſeeds of weeds and chaff, ſome will throw it a ſecond time to get them all, or near all, out; in order to which, the taſker is to obſerve as at firſt, whether the wind blows againſt his throw, or with it. If it blows with it, it is wrong for his purpoſe, becauſe it will blow and force the chaff and ſeeds of weeds, to keep company in ſome degree with the wheat kernels: in this caſe, therefore, he muſt carry the wheat in a buſhel, or throw it back with the caſting-ſhovel to the former place, to enjoy the ſecond cleaning throw

in the beſt manner; which is a matter of ſuch importance, that though the barn doors or gates are ſhut, and the wind blows into the barn, yet the taſker ought to throw his wheat againſt the wind. Indeed, where a barn is made ſo very cloſe that the wind can have no power, then they do not ſtand much upon this point; but if they have a mind to throw it a ſecond time, they throw it to the contrary end of the floor, without regarding which way the wind is. After every four or five buſhels are thrown, and the corals are ſwept off, the throwing part is finiſhed.

The next thing to be done is to further clean the wheat by the wheat-ridder, which is a round ſplintered ſieve, worked in a round manner by the taſker's two hands, and who, by the art of working this ſieve, will cauſe thoſe corals, ſeeds of weeds, and other trumpery that eſcaped the throwing labour, to gather on the top of the wheat in the ſieve for his throwing them out, to be kept in a particular parcel by themſelves, to be thraſhed hereafter; and this we call Peggings, being compoſed of thoſe corals that are ſwept off the heap of wheat after throwing; and thoſe corals, ſeeds of weeds, and other trumpery the ridder-ſieve thus diſcharges. Then the farmer, when he has got a ſufficient quantity of them, thraſhes them clean, and grinds them for his

his family uſe, or mixes ſome of theſe peggings with ſome better wheat, for his home conſumption: and thus he does by his cavings; for as all wheat that ariſes from the thraſhing of his cavings or peggings, has a mixture of the ſeeds of weeds, or pepper, or ſmutty wheat, it is not fit to be carried to market with the better ſort; no not a little of it, leſt ſuch a little ſpoil the ſale of a great quantity of good wheat. But to return to my ſubject in hand.

After the wheat has been cleaned, by throwing and riddering, the next, third, and laſt ſtage of cleaning, is done by ſcreening it; for this purpoſe the *Hertfordſhire*, *Middleſex*, and moſt other farmers, make uſe of the tall wire ſcreen, that ſtands in a leaning poſture of itſelf; and here the taſker does all his work himſelf, as he did when he throwed the wheat. (But when he riddered it, I ſhould have told you, he made uſe of a boy to ſupply his ſieve, by putting more wheat into it with a ſhovel, as the ſieve let it out.) Now this ſcreen having an open wooden receiver, or hopper, on the top part, the thraſher with his caſting ſhovel, puts up more wheat from time to time, as the former paſſes through it, and ſo on till all are ſcreened or cleaned. Then the next and laſt thing he does to his wheat, is meaſuring it, and at the ſame time putting it up by the buſhel into five buſhel ſacks, which we in *Hertfordſhire* call one load, and is carried on a man's

back into a cart or waggon ready to be drawn to market. This puts me in mind of what I ſaw in other countries, where their ſacks held three buſhels only, others four; but in our country they carry it all in five buſhel ſacks; and at market, thoſe men, called Sack-carriers, carry a ſack of wheat twenty poles together before they mount a high ladder with it, to ſhoot it into a granary; but as this is very hard and dangerous work, we always give them three-halfpence a ſack for their pains.

The vale way of thraſhing and cleaning Wheat.

The richeſt land this nation affords is commonly found in vales, that returns the biggeſt of crops, with the leaſt dreſſing; and thus makes the farmer amends for a bad road, and the want of plenty of wood; the contraries of which are commonly enjoyed in their greateſt latitude by moſt *Chiltern* farmers. As then theſe vale farmers enjoy the biggeſt crops of wheat in the kingdom, they ſtand in need of the ſtrongeſt and artfulleſt thraſhers: firſt, to get the corn clean out of their long *Lammas* ears and ſtraw, and next to clean it in the beſt manner poſſible; and this they had need do, and every thing elſe they can, to reach the greateſt price at market; for ſome of theſe come out of *Leiceſterſhire* and *Northamptonſhire*, as well as out of *Buckinghamſhire*, and draw fifty or ſixty buſhels at a time to *Hempſtead*-

market,

market, which lies thirty or forty miles diſtance from ſome of their homes. They therefore employ the ſtouteſt and ſkilfulleſt taſkers they can get, for thraſhing out their pay-rent corn, wheat; and, as they for the moſt part poſſeſs the beſt of oaken planked floors, they take care to have their ſtraw thraſhed thoroughly clean out; for all, that may be left behind by a ſlovenly thraſher, is loſt to the farmer. On this account, it has been known, that a lazy ignorant taſker has left as much wheat behind him after he had done thraſhing it, as his wages come to, for reaſons I am going to give.

The ſort of damage, I am going to write of, accrues for the moſt part to indolent gentlemen, and thoſe farmers who are negligent of inſpecting into their domeſtic affairs, or unſkilful in judging of huſbandry matters when they do. This damage here is committed by two ſorts of perſons, the menial taſker ſervant, and the days-man thraſher. If by the firſt, he does it chiefly for the ſake of making haſte to thraſh out five buſhels of wheat in one day, and leave it in its chaff, in order to ſpend the remainder of the ſame day in the enjoyment of his pleaſure abroad; for, ſays he, if I can perform my taſk in thraſhing out and cleaning five and twenty buſhels of wheat in one week, what is it to my maſter whether I work or play? But here too often happens a

damage

damage to the maſter; for the thraſher, to diſpatch his taſk, and have the more time to himſelf, I ſay, too often thraſhes out the head of the wheat, and leaves that which ſticks cloſeſt and faſteſt in the chaff and ear behind, becauſe this ſort requires the more labour and longeſt beating to get it out; and thus, as I ſaid before, all ſuch wheat, ſo left unthraſhed, becomes loſt to the maſter. If the damage is done by the ſecond, it is often done altogether out of lazineſs, becauſe the days-man thraſher has his wages paid him commonly for his work, be it for any thing he is ſet about, and accordingly muſt remain in the barn from ſix o'clock in the morning till ſix o'clock in the evening in ſummer time: therefore, in courſe, he will make his work as eaſy as he can, and that is to be done in thraſhing, by beating out only the biggeſt corns, that always come out firſt, and thus leave many of the ſmall corns behind in the ear, becauſe they require more than ordinary labour to get out.

This puts me in mind how a raſcally fellow ſerved a gentleman farmer, or *Yeoman*, as the country term is. The gentleman, to prevent (as he thought) a day's-man thraſher's impoſing on him, bargained with him to thraſh and clean his wheat for three pence a buſhel fit for market, the bargain being made during the gentleman's pleaſure: this thraſher found out a way to be too

cunning for him, by taking this advantage; he threw down a flooring of wheat-ſheaves off the mow, as uſual, and ſeemingly before the gentleman's face thraſhed in a right manner; but, in his abſence, he took the opportunity of beating ſo much corn out of every ſheaf, as would come out very eaſily, and then bound up the ſame ſheaf, and laid it in a part of the mow, where it would appear as if it had never been meddled withal. And thus he proceeded till he got the quantity that was to be ſent to market, in hopes that when the next thraſher was employed, they would lay this fraud to his charge, and forget the veteran rogue.

In vales, as in *Chiltern* countries, their way of thraſhing wheat, as I have obſerved, is one and the ſame; but, in cleaning it for market, they differ very much. In the vale they clean by the wind-fan, as being the cleaneſt way of all others; and although our *Chiltern* farmers refuſe to follow it, for reaſons I ſhall by and by aſſign, yet our *Chiltern* oatmeal-makers prefer it beyond all; becauſe it blows away their hulls, and offal-ſtuff, better than any way they can invent; and, for a farther proof of all this, I ſhall produce undeniable reaſons before I quit this chapter.

After the wheat is thraſhed and cavined, ſo that all the groſs ſhort ſtraws and other trumpery are taken out of it, and the wheat and chaff only left,

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left, the wind-fan is ſet near the door of the barn, and a buſhel or tub with its bottom upwards placed by it, for a man to ſtand on it, the better and more conveniently to ſieve out the wheat before the wind-fan, which is here placed and worked, to blow away all chaff, ſeeds of weeds, and the lighteſt kernels from among the capital big-bodied kernels, in order for cauſing it to fetch the beſt price at market. Now they compleatly perform this work, with the help of two men and a boy. One man ſieves out the corn, and the boy with a ſhovel ſupplies the ſieve as quick as the ſifter can diſcharge it. The third turns the wind-fan, and by the quick motion of its ſails, produces ſo ſtrong a wind, as clears the wheat in the greateſt perfection; and the better, as the fan is placed fit for obtaining the greateſt ſhare of wind to blow away the chaff, weeds, and light kernels of the wheat. The head-wheat is ſieved and fanned but once; but the leger ſort is ſieved and fanned twice, to get all in the beſt order. Thus two men and a boy can clean ten quarters of wheat in one day, with eaſe, when one *Chiltern* thraſher, with a boy to fill the ridder-ſieve, finds it tight work to clean five and twenty buſhels of wheat in one day, by throwing it out of its chaff, riddering it, and ſcreening it.

And now I come to prove that thoſe farmers, who

who clean their wheat by the wind-fan, clean it much eaſier, cheaper, and better than the *Chiltern* farmer: eaſier, becauſe the wind-fan ſaves a great deal of labour, which the *Chiltern* farmer employs in throwing and cleaning his corn: cheaper, becauſe two men and a boy will do a conſiderable deal more in a day, than the *Chiltern* men can with the ſame number of hands: better, becauſe it is publickly known, at *Hempſtead*, and other great markets in *Hertfordſhire*, that the vale-wheat comes, for the moſt part, much cleaner from ſoil or trumpery than our *Chiltern*-wheat generally does; and not only cleaner, but larger bodied; becauſe by the vehement force of the wind which the fan raiſes, the moſt light wheat-kernels are blown away from the main heap; ſo that there remain none but theſe of a larger ſize, which always meet with a preference at market: wherefore it is plain, that it is not only their occupying better land than our *Chiltern* or *Hill* farmers do, that cauſes them to ſell the largeſt-bodied corn for the greateſt price; but their way of cleaning it adds a prodigious advantage to it, as I have here, I think, ſufficiently proved. And happy it is for them, that they do thus enjoy the beſt of land, and make uſe of the beſt of art to clean their grain; for, as many of them draw their wheat twenty, thirty, or more miles an end to our markets, if they did

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not ſell it the ſame day they brought it, it would be to their very great damage, by reaſon it would oblige them to attend another market for its ſale at a great expence. In ſhort, the vale-farmer often does as much at once ſhifting and fanning, as the *Chiltern* farmer does at twice throwing and riddering; for, when wheat is in a foul condition by the ſeeds of weeds and other trumpery, the *Chiltern* farmer is frequently obliged to throw it twice, before he can make it fit for the ſcreen. Hence the uſual ſaying took its riſe, that once throwing of ſome wheat will do it as much ſervice, as two throws will do a worſe ſort. That is, when wheat is not very foul, once throwing it will clean it, as much as twice throwing will a fouler ſort. In a word, the vale farmer is thought to have the advantage of the *Chiltern* farmer, in the cleaning of his wheat; but cuſtom carries it ſo much in the country, that there are frequently ſeen, even in one and the ſame pariſh, two different ways of ploughing and ſowing the ſame ſort of land, in the management of their cattle, and many other things in the farming way; inſomuch that one obſtinate farmer, by his continuing his obſolete method of proceeding in huſbandry affairs, has broke, and his ſucceſſor got money, and went forward, as much as the other went backwards

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in the world; and this by his more rational and improved way of going on.

CHAP. XIII.

OF THE PRODUCT OF WHEAT.

AS to the quantity of wheat that commonly grows on our common field land, I am confined to an eſtimation of it according to the nature of the ground. If on a true loam, as we have on our hilly land at *Gaddeſden*, we generally have four loads on an acre one year with another for a ſingle dreſſing, with the fold, cart, or hand; nor does our incloſure here anſwer better, for the one is as good land as the other: this I call a cuſtomary, moderate crop (including the tythe) on our tilth ground. On our gravels, below the hills, as much, both in incloſure and field land, that are here alſo alike, if they are well dreſſed; for though this is more hungry, and not of ſo rich a nature as the loamy, yet by its more kerning quality, we have often as good crops as on them; but it muſt be more aſſiſted with manures. The chalks in the common fields are now ſo improved, that they alſo return as much wheat as the marly-vale ſoils, even from four to eight loads on an acre: but with this difference, that a double dreſſing on this white ground,

ground, is but equal to a ſingle one on them. Sands likewiſe have their peculiar properties, as they are richer or poorer, and require dreſſing, and grain accordingly. In this, ſoot nor aſhes are proper manures, becauſe of its looſe body, that will not retain their light one ſo long as the loams, gravels, and chalks will; and therefore with fold, cart dung and rags, it receives the beſt improvement for the growth of rye, peas, turnips, thetches, tills, and white-oats; for wheat, barley and black-oats do not anſwer here ſo well as in ſome loams and clays: but the rye in particular agrees with this dry earth, and alſo on the chalks and gravels, where it commonly returns the farmer four loads on an acre, for ſowing two buſhels and a half. This is a grain that certainly exhauſts the ground to a great degree, as I have known it to do on a loamy gravel, that I could not recover in ſix years, after a good crop of this rye was got off, by a tenant that rented the land before me, who ſowed it on one ploughing, preſently after other grain was got off, in *Auguſt*, for only his ſheep to feed on in the ſpring; but this grew ſo well, as encouraged him to let it ſtand for a crop, and he had a good one.

The greateſt crop of wheat I ever knew in our parts, ſown in the random way, was at *Dagnal*, in *Bedfordſhire*, where a hog-dealer ſowed a little gravelly

gravelly field, containing one acre and half a rood of ground, with wheat, and received from it, in one crop, fifty buſhels: but the ground did not want for enough of the beſt dreſſing, and that was hogs-dung.

CHAP. XIV.

OF THE SAMPLE OF WHEAT.

I Have largely written on the ſubject of buying and preſerving wheat ſound; but have not given the moſt particular account how perſons may know what ſort of wheat is the propereſt to buy, and lay up in a cheap time, againſt a riſing market; nor how to buy wheat that is in a right condition to lay up in ſtore; which is an article of the utmoſt importance to all ſuch as are ignorant of the ſame, and yet venture to lay out their money in this commodity, to advance it by an increaſing price. And although Mr. *Worlidge*, and the moſt ingenious Mr. *Jethro Tull*, has given ſome account of keeping wheat by way of magazining it; yet neither they, nor any other author whatſoever, have ever yet publiſhed ſuch inſtructive particulars as can inform an ignorant buyer of wheat, how to prevent his being impoſed on. This is a matter of ſuch conſequence, that, for want of a plenary

inſtructive account of it being made public, thouſands have committed ſuch groſs miſtakes, as have proved not only a great loſs to themſelves, but, in ſome degree, a damage to the nation in general. For example: When great quantities of wheat are laid up in a bad condition, or, if laid up in a good one, and becoming ſpoiled afterwards by ill management, the owner ſuffers in the firſt place, and the country afterwards, as being thereby deprived of ſo much good wheat: a loſs that might have been eaſily prevented, had the perſon been maſter of a knowledge ſufficient to inform him how he might have bought a right ſort of wheat in, and kept and preſerved it in a ſweet ſound condition: and therefore, I have thought it more than ordinary neceſſary to ſend the account I have written into the world, to prevent theſe private and public loſſes; and the rather, becauſe this affair of laying up and magazining wheat, engages not only great and able farmers, but alſo gentlemen, tradeſmen and others, to become, as it were, merchant-adventurers, in the buying and ſelling of this ready money commodity; a buſineſs very enticing on this and other accounts. I know ſeveral that carry it on at this time, without ſo much as hardly appearing in it in perſon; and they are thoſe that hire a loft or granary in a market

market town, ſituated ſo near the market, that ſack-carriers or corn-porters convey the bought wheat on their backs to ſuch loft or granary. One gentleman, laſt year, 1744, and this, bought up, as I have been informed, five ſacks of wheat, that were ſhot and emptied in a granary hired for this purpoſe, to lodge and keep it againſt a riſing market; and yet, I believe, never was ſeen in the market to buy any himſelf, becauſe he employed a ſkilful truſty man to do it, one whom he repoſed a confidence in, as to his knowledge and honeſty; but the better to be on a ſure footing with his agent, he pays him, as I underſtand, ſo much a ſack for buying, looking after it while it is in the granary, and ſelling it afterwards. Another is a lord's gentleman, who, having ſaved in his ſervice a ſufficient quantity of money, employs ſome of it in this way; and who, being ignorant himſelf of buying a true ſort of wheat to lay up, employs one that gets part of his bread by carrying ſacks of corn on a market-day for farmers, to buy a proper ſort of wheat to lay up for him at the loweſt price, and ſell it for him again when he thinks an encouraging opportunity offers. Thus he turns the penny on the lottery, as it were, of buying and ſelling wheat; which, as it is the king of grain, never wants a market at ſome price or other, if

it is in ſound ſweet order at the time of ſale. The next claſs of buyers and ſtore-keepers of wheat, that I ſhall take notice of, are farmers ſervants: theſe, by their occupation, are proper judges of good and bad wheat; and as ſome of them have been good huſbands enough to ſave money by their ſeveral years ſervice, employ it in this way of buying and laying up of wheat in a market-town, in hopes to make a profit of it; and this he does generally by ſome friend, whoſe buſineſs is otherwiſe to attend at market every week; for he himſelf has not always time nor opportunity to do it: And ſome of theſe have been ſo ſucceſsful as to continue this buſineſs years together: And if ſuch an one's pocket does not enable him to buy wheat enough to defray the charge of a loft, &c. then I have known a farmer's ſervant (who, by his diligent ſervice, has obtained leave of his maſter to go now-and-then to an adjacent market for this purpoſe; particularly a taſker, who thraſhes out his quota of grain in the uſual cuſtomary limited time every week) engage himſelf with a tradeſman to help him out; the firſt to find judgment and money, and the laſt to find attendance; and in this manner have gone on well, not only in buying and ſelling of wheat, but likewiſe by doing the ſame with other corn. The laſt ſort of buyers or traunters of wheat that I ſhall here mention,

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are mere tradeſmen, who, having ſpare money, and a fancy to employ it in this buſineſs, in order to have two ſtrings to their bow, for a living, ſet up for buyers and ſellers of wheat only; and though they themſelves are not ſufficient maſters at preſent of the ſecret, yet venture to be dealers in it, by ſeeing through other mens eyes, and truſting to their better judgment, in hopes to become ſuch proficients themſelves in time, by repeated purchaſe of this grain, as to learn to know a right from a wrong ſort, and deal in it without the help of any. Inſtances of this there are many to my knowledge, ſome of whom get, while others loſe. But whoever he is that endeavours to turn his money in this way to profit, he ought to be a good judge of what he does; becauſe, if ten or fewer ſacks of damp wheat are mixed with hundreds of dry wheat, the whole, if kept any time, will certainly be damaged by them; and if kept long, the little bad will infect the great quantity of good, cauſe the breed of wevils, and perhaps ſpoil the whole heap. In ſhort, to prevent then the damage that ſtore-wheat may occaſion, both to the private perſon, as well as to the public, I have drawn up the following account, not built on probabilities and uncertain theory, but publiſhed from a market-practice of many years experience, and from one of the beſt markets in *England* for grain, as *Hempſted* is juſtly allowed to be; for to

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this market wheats are brought from great diſtances; and, I believe I may ſay, from off all ſorts of ſoils, and perhaps in ſuch variety of ſpecies, that few markets beſide have the like.

When Wheat is beſt bought to lay up in Store for long Keeping.

This article is of conſiderable importance to regard, becauſe wheat cannot be laid up too dry for keeping, and it ſeldom arrives to a true dryneſs in barn-ſtack, nor any where-elſe, till the winter is paſt; for although it is houſed dry, yet it may receive ſuch a dampneſs afterwards as to make it unfit to be laid up for ſtore, for want of lying long enough in the ſtraw: therefore it cannot be ſaid to be rightly ready for the flail, and threſhed out to keep long in a loft or granary, till *March*, when the winds of this month are generally of ſuch a drying nature, as to affect all things above ground little or more. I ſay, in *March*, or in any other of the ſubſequent ſpring and ſummer months; for upon this depends very much the good or ill ſucceſs of keeping wheat long; and to know when wheat is truly dry, ſweet, and ſound, is the chief art of a buyer and ſtore-keeper; and therefore I ſhall, in the next place, proceed to give ſuch an account as never was done yet, how wheat may be rightly known to be thoroughly dry, ſweet, and ſound.

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I am now come to treat on one of the chiefeſt articles relating to the preſervation of naked wheat in a dry, ſweet, and ſound order a long time; without the knowledge of which, it is in vain for any perſon to commence wheat-buyer, and attempt to lay up ſale-wheat, for keeping it againſt a riſing and profitable market. This is an art that conſiſts in more than four ſeveral particulars, viz. in ſeeing it, handling it, ſmelling it, biting it, &c. And firſt, I ſhall begin with diſcourſing on the looks or ſight of wheat, as it ſtands to be ſold in ſacks in the market. The ſenſe of ſeeing is perfectly neceſſary to be employed in this buſineſs, becauſe a right colour is an indication, in a great degree, of the goodneſs of this grain. Wheat that has a bright fine browniſh caſt, whether it be a red *Lammas*, a yellow *Lammas*, or a pirky ſort, is valued the more by good judges, for being of this colour; which ſhews, that ſuch wheat had little or no rain fell on it, nor while it afterwards ſtood in the field; conſequently ſuch wheat muſt be got into the barn or ſtack in exceeding good order; and the better ſtill, if it is cut not too ſoon, nor too late: if it is cut too ſoon, the colour indeed may be tolerably good, but the kernel will be ſomewhat ſhriveled and guttery; and if it is cut too late, it will have a full kernel, but a deadiſh colour and flour; therefore, when wheat is almoſt, but not ſo full

ripe, as to begin to ſhed out of its hoſe, it is beſt to reap; for then it will be plump-kernelled, have a delicate bright browniſh colour, and furniſhed with a lively ſpirituous flour, that will make excellent bread. To obtain theſe deſired ends, fine weather at harveſt is a great bleſſing indeed; for then the ſun ſhines ſtrong, ſcorches the kernels in the ear, and thus cauſes them to acquire the fine coloured plump body I have been writing of. By the ſight alſo, ſmutty, and pepper-wheat may be diſtinguiſhed from that which is ſound; and by the ſame ſenſe may all ſeeds of weeds be diſcovered, as thoſe of melilot, darnel, burs, cockle, crow, needles, &c. which in many grounds grow up with the wheat, and greatly infect and damage it; for theſe, or any of theſe, do it little or more harm, and leſſen the value of it either in kernel or flour: and for the better diſcovery of ſuch pernicious ſmutty, pepper-wheat, and ſeeds of weeds, a nice buyer of wheat will make his inſpection deeper into a ſack of it, than juſt to turn over a handful or two of the top part; for as I ſell all my wheat at *Hempſted* market, I have had an opportunity to ſee more than one trick played with wheat to cheat a buyer; one of which fell to my lot in the year 1744; for, having then an order to buy ſeveral ſorts of ſeed-wheat to ſend to a gentleman, my ſack-carrier informed me, that

that he ſaw a fine ſack of yellow *Lammas*-wheat to be ſold; a wheat that he was ſure would pleaſe me. On this I gave him money, and truſted him to buy it for me, which he did; and, indeed, it appeared at top to be excellent wheat-ſeed; but ſhooting it out of the ſeller's into a ſack of my own, there was ſeen, in above half the wheat, ſuch a foul mixture of ſeeds of weeds, that I was forced to grind it for my family uſe; and as the owner of the wheat ſold it by another hand, I could have no recompence allowed me. It is for this reaſon, therefore, that a judicious buyer runs his hand pretty deep into a ſale-ſack of wheat, to ſearch and ſee if the wheat is as clean lower, as it is at top, to prevent this fraud of making the top buſhel more clean than the reſt, on purpoſe to deceive the eye of a buyer; which leads me, in the ſecond place, to conſider the benefit of handling wheat before it is bought. Now to the ſenſe of handling and feeling ſale-wheat, is very much owing the knowledge of underſtanding its value: this is ſo much relied on by the beſt judges of wheat, that they will buy none before they feel it; and on this account it is, that as ſoon as our *Hempſtead* market bell rings at twelve o'clock, for giving the farmers notice to begin to ſell their wheat, the wheat buyers directly run their hands into the five buſhel ſacks of this grain, and if they feel it cold

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(as their uſual term is for dampneſs) they generally directly leave that ſack for feeling into another man's; and ſo proceed till they feel that wheat which beſt pleaſes them; and that is the ſort that feels truly dry, has a plump body, and good colour; and when they have met with ſuch, the queſtion is aſked, how much a load the farmer will ſell it at (for at this *Hempſtead* market, we call a five buſhel ſack of wheat, a load, being the largeſt uſual quantity that ſack-carriers, or corn-porters, commonly carry on their backs) and if the price is agreeable, they buy it; ſome for grinding directly, and others for laying it up in ſtore againſt a riſing market; for in this town there has been ſold upwards of —— ſacks of wheat on one market day; which gives employment to a conſiderable number of perſons to deal in this grain, that we call mealmen, becauſe they furniſh many of the *London* bakers with great quantities of fine wheat flour every week throughout the year, and thereby cauſe a briſk trade to the ſeveral millers about *Hempſtead*; and on this account it is, that there are more water-mills erected on the river *Gade*, near this market, than on any other in *England*, in the ſame diſtance of ground. Thirdly, the goodneſs of wheat may be alſo diſcovered by the ſenſe of ſmelling: This may be juſtly termed a neceſſary branch of the knowledge

ledge how to buy good wheat fit for grinding, or to lay up for ſtore; for if a ſack of wheat is bought without firſt ſmelling it, a buyer is very liable to ſuffer by it, becauſe ſuch a ſack of wheat may appear to the eye with full plump-bodied kernels, and have a fine colour beſides, yet unfit to be bought for either grinding or laying up in ſtore; to which I add, that a ſack of wheat may appear clear of the ſoil of all ſeed of weeds, and yet be a damaged ſort. Now to make out theſe particulars, I ſhall begin with ſmutty wheat. Smutty wheat, or rather ſmutty balls, that are found in ears among many crops of wheat, yield a moſt offenſive, ſtinking, unſufferable ſmell, if rubbed and put to the noſe; and as many whole ears have nothing but ſmut-balls in them, and others part ſmut-balls, and part pepper-wheat in them, theſe, by being bound up in the ſame ſheaves with ſound ears of wheat, are generally thraſhed together, and thereby mixed with the ſound wheat, ſo that there is no ſuch thing as parting one from the other after threſhing, but the ſmutty balls and the pepper-wheat muſt go together in the ſame ſack to market; nor is there any way to prevent ſuch a mixture, but by drawing out the ſmutty ears from amongſt the ſound ears before thraſhing, and this is ſuch a tedious chargeable work, that few attempt it; if they do,

do, the ſound wheat is apt to be tainted, and ſmell of it, and therefore by the ſmell this is diſcovered; and when it is, the mealmen generally refuſe it, becauſe it gives the flour of the ſound wheat, a noxious naſty ſavour, and, in courſe, would be a prejudice to the baker, by making his bread to ſmell of the ſame. Thus ſmutty balls yield a hateful ſcent in the barn, in the ſack, in the flour, and in the bread. I heard a taſker-ſervant ſay, that he could hardly bear to ſtay in the barn while he was thraſhing ſmutty wheat-ears among ſound ones, becauſe they made the place ſtink to an horrid degree. But this is not all that employs the ſenſe of ſmelling in buying of wheat; there are melilot and crow-garlick weeds that grow up amongſt wheat in ſome grounds, and as theſe are bound up with the ſheaves, and thraſhed out together, they give the wheat a moſt diſagreeable ſmell; but I cannot ſay this evil is very common amongſt this grain, becauſe few grounds are infected with them, and where they are, they grow moſtly in crops of *Lent* grain. I have but one hurt to wheat more to take notice of here, and that is the ſtinking *May* weed, a weed that, I believe, infects and grows in all ſorts of earth (except ſand) eſpecially where wheat, barley, and oats have been ſown in a coarſe tilth; for this weed is the commoneſt weed we have, and is in many places ſo common, that

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in wet ſummers moſt reapers greatly ſuffer by it, for then it grows ſo rampant, as to be almoſt as high as the wheat, which gives it the more power to damage men, wheat, and other corn and chaff. To men it is ſo venomous, that it poiſons their legs through their ſtockings, and their hands where it can come at them, and there raiſes bliſters, which to get preſent eaſe of, they ſometimes prick them for letting out the water, and ſometimes the ſkin rubs off, and thence proceeds ſuch ſoreneſs, as hinders their reaping till they get better. To wheat, becauſe when this weed grows thick among it, the reapers cannot well help binding ſome of it up in the ſheaves; and then the taſker is obliged to thraſh it with the wheat, as the pieces of ſtalks and ſeeds are mixed, and remain among it, till it is cleared of them by thraſhing, throwing, and ſifting; and although the wheat is by ſuch throwing and ſifting cleared of the *May* weed ſtalks and ſeeds, yet it is often tainted with a ſtinking ſmell of it, from lying ſo long with the wheat in the barn or ſtack, and from being thraſhed with it. I heard that a miller ſhould ſay, the wheat that he bought of a certain ſlovenly farmer, was ſo infected with the ſmell of this ſtinking *May* weed, that it tainted the flour of it to his prejudice; but that when he bought it of the farmer, he did not believe it would have had ſo bad an effect. For my part, I do

not

not wonder at it, becauſe I have known a great deal of miſchief enſue from the taint of this very nauſeous weed; a miſchief that many farmers are ſenſible of to their coſt, by its cauſing their men to lie idle for a cure, for its damaging their grain, ſpoiling their chaff, and ſeeding their ground, to the increaſe of its weed. And on the account of ſuch its diſagreeable ſmell it is, that horſes refuſe to eat the chaff that is thraſhed from ſuch tainted wheat; for if chaff is but little infected by it, they will not eat it with a good ſtomach. For theſe ſeveral reaſons, it is a common ſight on a market-day, to ſee wheat buyers put a handful of the wheat, they are about to buy, to their noſe, to try if they can diſcover any ill ſcent among it; and if they find any, they either refuſe ſuch wheat, or buy it at a very low price; and therefore no tainted wheat ought to be bought to lay up for ſtore, no, not even if it has but a very little ill ſcent belonging to it, leſt it infects the reſt, and hinders it a profitable ſale. Fourthly, notwithſtanding all I have hitherto written for arming a buyer againſt laying out his money on bad wheat, and to buy that which will pay for being kept againſt a riſing profitable market, by firſt handling it, to prove whether it is dry enough for the purpoſe, to ſee if there be any ſoil among it, to ſmell if it be any way tainted; yet there remains another thing to be done

done before a perſon ventures upon buying wheat to lay up, and that is this; that all wheat to be bought on this account, ſhould be firſt proved by biting a little of it, to know whether it will be dry enough to lie one, two, or three, or more years in a granary, without taking any hurt; if it is, then ſuch wheat will bite hard and ſhort, as if it had been almoſt parched; when it is in this condition, has a plump body, and ſmells ſweet, it may be bought for a complete cured wheat, that will keep ſound, years together, free of the breed of wevils, and all other damage, eſpecially if ſuch ſtore wheat is made to paſs through the tall wire-ſcreen once a year, to take out, and diveſt it of all duſt that may get among it by long keeping; and thus, ſuch a well cured wheat has been kept good ſeven years together, as I have heard it reported. To this purpoſe obſerve alſo the following *Items*: Firſt, wheat by feeling it only with the hand, may deceive the buyer as to its dryneſs; but by biting it the difference is confirmed. Secondly, If wheat is dryed by the fire in ſacks, it may be diſcovered by bite and ſmell; for in this caſe it is apt to bite tough, and ſmell of the fire. Thirdly, wheat by long keeping in the common way, and doing no more to it than laying it in a granary, loſeth its ſtrength and ſpirit. Fourthly, yellow pirky wheat, if reckoned to have a thick ſkin, is

a tough wheat, and not ſo good to lay up as the better, finer, brown pirky wheat is. Fifthly, That, by the noſe, wheat may be diſcovered, whether it is freſh or ſtale thraſhed; if freſh, it will then ſmell very ſweet; for when juſt out of the ſtraw it is in its ſweeteſt condition, and then fitteſt to be laid up for ſtore. Sixthly, That, by ſome, white wheat is thought to be a more tender ſort than either a brown, a pirk, a yellow, or a red *Lammas*, and therefore the more unfit for long keeping.

CHAP. XIV.

RYE.

THIS grain is allowed by one and all that I have converſed with, to require a winter and part of two ſummers to grow in, and therefore they ſow it in *Auguſt*, on a fine well dreſſed tilth, if for a crop; but if only to feed ſheep in the ſpring, they often venture it on only one ploughing after wheat or barley, and harrow it in on broad lands; then, if it comes thick, they feed it in the ſpring, but not too bare, and let it remain for a ſtanding crop. Thus by eating it with ſheep, the rye ſhoots the ſtronger, and the rather, for the aſſiſtance of the dung and ſtale; but if it proves thin, the farmer then

alters his meaſures, and ploughs it up for peas or oats. The reaſon for this early ſowing, is to get it ahead betime, that it may better endure the ſeverities of the froſts and wets, that otherwiſe would endanger its dying away, as being not ſo hardy a grain as wheat: for this ſo much affects a dry ſoil, that it utterly refuſes wet low grounds; and therefore, the better to ſecure it againſt theſe misfortunes, where any degree of miſchiefs are ſuſpected, they ſometimes ſow it in ſtitches on fine tilths; or if in grounds that won't admit of this way, they ſow it in broad-lands that are ridged up, as they do in the vale, in order to carry off the wets more eaſily. To prove the veracity of this, the men about *Cheddington* and *Ayleſbury*, never ſo much as attempt the ſowing of this grain, as well knowing their labour would be fruitleſs, both in reſpect of their marly, clayey, black earth, and their low watry ſituation.

For as it is the nature of rye to grow beſt in dry, hollow, warm ground; this ſtiff, cold, aqueous land, is contrary to its homogeneal quality, as much, for ought I know, as it is to ſainfoine, that is notoriouſly known to refuſe all ſtiff, wet, fat earths; becauſe both their roots, I ſuppoſe, would rot in the chilly waters that this ſoil moſt tenaciouſly retains, and that, perhaps, by reaſon of their ſpungy tender parts,

that are more inherent to them than many others; or elſe, that their roots diſagree with the unctuous marly quality of this earth.

About the twenty-ſixth of *September*, 1736, I ſaw rye high enough to cover a hare, in their ſandy grounds, between *Thetford* and *Norwich*; and when they ſow their grain early in theſe hot ſoils, three pecks, or three and a half, are ſufficient for one acre, even for a ſtanding crop, becauſe every kernel generally grows in this looſe earth; but if it is ſown in ſtiffer ſoils, then two buſhels are but barely enough; for in theſe there are commonly ſome buried that never grow, and others that are carried away by birds.

This may be done by any tenant without breaking through the articles of his leaſe, which, though it generally provides againſt croſs-cropping the ground, yet by this method he may have a crop free of any forfeiture, becauſe it is only a ſpring feed for ſheep, that dreſſes, not impairs the ground, and is to be fed early enough off, to give the farmer room for a fallow ſeaſon to ſucceed the ſame year, according to his covenants. It is performed thus: As ſoon as the crop of wheat, barley, beans, or peaſe, are got off in this month, immediately give the ſame ground (which muſt be a ſand, chalk, gravel, or a dry loam) one ploughing, and harrow in two buſhels of rye ſeed, twice longways, and once

once acroſs. Thus you may ſecure a good food for your ewes, cows, or horſes, to eat the firſt time in *March*, and ſo on, at times, till *May*, when you may plough the ſame up again, and harrow in turnip ſeed, or prepare the land for a wheat crop. From this management I received conſiderable benefit in the cold dry ſpring, 1742.

BOOK V.

Of the CULTURE *of* BARLEY.

CHAPTER I.

OF THE SOIL FOR BARLEY.

THIS is a more difficult grain to get plentiful crops of, than wheat, becauſe of its diſagreeing with ſeveral ſoils and ſituations where wheat will thrive; inſomuch that it is an uſual ſaying, that the land which is proper for a wheat crop, is not ſo proper for a barley crop; hence it is that moſt of the *Suffolk* and *Norfolk* farmers, in particular, who occupy ſandy grounds, are obliged to this grain for the greateſt part of their profit; and where they have not vent enough for it, for malt-making, they put it to the uſes of feeding turkies, geeſe, hogs, &c. which enables them to pay their landlords; and it is in theſe two counties, beyond all others in *England*, that ſome fine improvements in huſbandry may be ſeen, to the infinite profit of both landlords and

and tenants, which have been brought to paſs within theſe fifty years, ever ſince they learned the way of ſowing and hoeing turnips in their open, common, ſandy fields, which has not only proved a preparative to their ſucceeding crops of barley, but ſuch turnip crops give them a vaſt firſt profit beſides, by feeding their horned beaſts with them to a degree of fatting, ſo as to fit them in a compleat manner for a *Smithfield* market, where thouſands of them are ſold in a year; and by the cooling fat dung, and fertile urine, that their runts, oxen, and cows leave behind them in the land, they ſo dreſs and prepare their dry, huſky, hungry, warm, ſandy grounds, as to cauſe them to return more plentiful crops of barley, of late years, than they had formerly.

It is true, that the ſandy ſoils commonly yield a thin bodied barley-corn, and in the reddiſh ſands a high coloured grain: yet where ſuch ſands are fully dreſſed with dung or manure, the barley kernel may be improved beyond the ſize of thoſe that grow in poorer grounds. Thus in the ſandy loams about *Fulham*, by the help of the *London* dunghill, they often get excellent crops of barley: but ſtill their grains ſeldom arrive to that bulk, as in the more agreeable, gravelly, chalky, and intire dry loams, which leads me to be the more particular in writing of

propagating barley crops in the following different ſoils and ſituations.

This ſoil, in one reſpect, is the moſt natural ſoil of all others for the growth of barley; that is, for cauſing it to grow with the greateſt expedition; and, therefore, a farmer that rents a ſandy ground, has an opportunity, beyond all others, to ſow his barley ſeed the lateſt; for in ten weeks time, in ſuch a ſoil, a crop of barley has been ſown and got off; for as this grain, beyond all others of its ſize, has roots of ſo tender a nature, that they cannot penetrate into any hard rough earth, a ſand, whoſe particles are for the moſt part globular, gives the thready weak fibres of the barley roots, an eaſy opportunity to make their entrance amongſt them, and get their living in the moſt expeditious manner.

On this account it is, that a turnip crop, or a rye crop, that was ſown for, and fed off by ſheep or oxen even till *May*-day, will, in this looſe, warm, dry earth, give the farmer leave to ſow the ſame ground with barley. But then ſuch a barley crop is not in a little danger of being ſpoiled by droughts, becauſe this is the moſt burning ſoil of all others, and in dry times impedes the ſprouting of the barley ſeed to a great degree, and cripples its growth afterwards, by cauſing the crop to ſprout at different times.

That

That barley ſeed, which lies deepeſt in the earth, will ſprout ſooneſt; that which lies next higher will ſprout next; and that which lies higheſt of all, will ſprout laſt; by which means there will be three degrees of ripeneſs.

April is not ſo late a month as to deprive the farmer of ſowing ſeveral ſorts of field ſeeds. This month gives the farmer, who is maſter of a proper ſoil and incloſure, an opportunity to diſplay his ingenuity, in ſowing therein a proper ſeed; and in order to do this, I ſhall endeavour to ſhew the practice of other farmers, that have acted in this reſpect before them, and by this means make known the dark and bright ſide of their management; for treading the paths that others have made by repeated trials, and found it the ſureſt and moſt ſucceſsful way of proceeding, may ſave, in a great degree, the riſque of a perſon's deceiving himſelf by taking wrong meaſures; happy, therefore, is he who follows the practice of thoſe who have, by repeated trials, found their experiments to anſwer in the moſt ſucceſsful and profitable manner.

A farmer rented an incloſed farm in a *Chiltern* country, where his ſoil was chiefly a clean loam, not too wet nor too dry, for which he paid ten ſhillings an acre a year, for eighty acres, but had no common to keep a flock of ſheep on to

fold, and therefore he kept about forty ewes for breeding only, which diſcouraged him from ſowing barley, and cauſed him to ſow only wheat, peaſe, and oats. Now this farmer put himſelf to the charge of digging chalk, which he could do in almoſt any part of his ground, and laid it on his loams, that it did ſome ſervice to: but alas! Chalk alone will not do; for though it is a dry, ſhort, ſweet dreſſing, yet it wants the moſt neceſſary quality of all others, and that is the fertile one; for which reaſon a judicious farmer adds dung to it in one ſhape or other, as knowing that chalk alone is of a poor nature. However, this farmer, by making uſe of no other dreſſing than what his ſtable, hog-ſtye, cow-houſe, and hen-houſe returned him, had not enough to ſpare to aſſiſt a barley crop, nor would he be at five pounds charge of buying ſoot, lime, horn-ſhavings, woollen rags, or malt-duſt, &c. once in a year, to get ſix or eight acres of good barley, and thereby loſt a profitable opportunity; for without a fine tilth and good dreſſing beſides, it is a folly to ſow barley. Now as this farmer lived but twenty-ſix miles from *London*, he might (as many do that live further off than he) have variety of manures for this purpoſe; for it ſometimes happens, that a barley crop pays a farmer more than a wheat crop, becauſe, when wheat,

by

by the extreme inclemency of the winter weather, is hurt and damaged; a barley crop that is ſown at a ſafer time of year, may anſwer far beyond it, as it happened in the year 1740; for had not the barley-crop ſucceeded, in that time, better than the wheat crop, there had been a moſt lamentable famine indeed; but as it happened, the plenty of barley helped out with the ſcarcity of wheat. From all which I would obſerve and infer, that it is a great loſs to let ſuch a farm be without a barley crop; not only for the direct profit that it produces beyond oat or pea-crops, but alſo for the benefit of giving the earth a change of ſeed, which is of vaſt conſequence to a farmer, becauſe there is no ground whatſoever but affects this piece of huſbandry: and whoever does not practiſe it, will be his own enemy. In the vale of *Ayleſbury*, their farmers, ſome years ago, thought themſelves abſolutely in the right of it, when they ſowed their blue clay, and ſtiff, wettiſh, black loams, with only wheat and horſe-beans; but ſince ſome of them have ſown barley by way of change of ſeed, they have found their account in it, and been convinced that change of ſeed is one very great means to come by plentiful crops of corn.

A farmer, like many others in the world, rented a farm in the *Chiltern* country, that lay about

about twenty-ſix miles from *London*, whoſe ſoil, for the greateſt part, was a red, ſtiff, ſtony clay, mixed with a loam, ſo that it might be called a clayey loam, and like the yellow clay, is of the moſt hungry, cold, and worſt ſort of clays. In this ſoil there have been ſeveral attempts made to get crops of barley, and to this purpoſe neither repeated ploughings were wanting to get the ground into a fine tilth, nor manure or dung to fertiliſe it.

But notwithſtanding all requiſite preparations were made uſe of, for obtaining good crops of barley, the farmer was diſcouraged from making further trials, becauſe of the ſeveral fatal accidents that attend barley-ſeed ſown in ſuch a ſoil. If a long dry time directly ſucceeds the ſowing, then ſuch a clay forms a cruſty ſurface, and hinders the infant barley blades from making their way into the air; and if a wet cold time ſucceeds, then the chillneſs of the weather, joining the cold nature of the clay, ſtarves the barley, makes it look reddiſh inſtead of a deep green colour, and cauſes it to pine till great part of it dies away; ſo that this, and his neighbouring farmers, who occupy the ſame ſort of clayey ſoil, have been ſo diſcouraged from ſowing barley, that they have forborne any farther attempt. This engages my pen to repeat what I have formerly made appear, viz.

Gravelly

Gravelly and chalky ſoils are very well known to be the beſt of all others for producing a fine, white, thin-ſkinned barley-corn; and, therefore, when a farmer poſſeſſes ſuch an earth, he has a great deal of reaſon to encourage the growth of barley crops in it; not only for the benefits I have mentioned, but alſo for that excellent quality more incident to a gravelly earth than any other, which is, its proneneſs to kerning or corning; for this ſoil, if it is well dreſſed, ſeldom or never fails of producing the largeſt crops of barley. But, when I mention dreſſing of this ſoil, I would be underſtood, I do not mean a common ſcanty dreſſing; no, as this is one of the looſeſt and moſt happy ſorts of earths, it is abſolutely neceſſary to beſtow upon it the greateſt aſſiſtance, that is, a double dreſſing, as is often done by ſeveral of thoſe able and judicious farmers I know, who rent much of this ſoil, and, accordingly, receive in return double crops of this grain, when their neighbours, who give it only a common ſlight dreſſing, receive but half the quantity at harveſt; for, by ſuch double dreſſing, the ſeed is ſo invigorated in its firſt vegetation, that it preſently runs into a branching growth, and covers its root with ſuch a defence againſt ſuch droughts, as to cauſe them to produce an early crop.

It is this gravelly ſoil that yields us the ſweeteſt of turnips, and therefore is moſtly ſown with turnip ſeed and barley; for as ſoon as the turnips are eaten off, they give this earth only one ploughing, and harrow in three buſhels and a half of barley-ſeed; but if the ground is more than ordinarily poor, four buſhels is the quantity. Then where a farmer has the excellent conveniency of running his fold over the ſeed, as ſoon as ſown, and can carry it forward, till the whole field is finiſhed, he will find it the beſt of dreſſing for this looſe, dry, gravelly ſoil. But, as few farmers have this opportunity, we commonly, about *Gaddeſden*, dreſs our gravelly barley-ground, with either dung, or *London* coal-ſoot; but, as often as we can, we do it with the fold; and, when we get a crop of barley, from off this ſoil in a right order, we ſeldom ever fail of finding not only a ready market for it, but alſo a ſhilling or two in a quarter more than for that barley that grows in loams or ſtiff earths: and this trial falls to my lot, more or leſs every year, as being owner of ſeveral fields of gravel, chalk, loam and clay, which leads me to give an account of ſowing barley in loamy earths.

As this is a ſtiff earth in compariſon of a ſand, a chalk, and a gravel (and is, indeed, the ſtiffeſt of all others, except clays) it receives a different

huſbandry from them to ſow barley-ſeed in, for returning crops that may anſwer the farmer's wiſhes. For this purpoſe, therefore, there muſt be more ploughings performed in this earth, than are neceſſary to be done in them, in order to bring it into a fine tilth, and make it ſufficiently porous to receive and nouriſh the fine tender capillary roots of the barley; becauſe theſe roots are of ſuch a ſoft, thready nature, that they will never thrive, unleſs they have a full freedom to puſh them eaſily into the earth; ſo that though a farmer ſhould beſtow a double and treble dreſſing on this earth, for making it return a large crop of barley, yet it will be to little purpoſe, unleſs the land is brought into a perfect porous fineneſs, by the plough and harrows.

CHAP. II.

OF TILLAGE FOR BARLEY.

IN loamy ſoils we ſow wheat, barley, oats, peaſe, beans, artificial graſſes, turnip and rape-ſeed, &c. and after the two latter have been eaten off with ſheep, we ſow barley-ſeed, upon one, and ſometimes two ploughings: ſome commend the ploughing the turnip ground once, and others twice, for a crop of barley: if it is ploughed

that, on one ploughing up of a ſtiff turnip earth, a good crop of barley may be got, as a neighbour of mine had, who ſowed his ground on only one ploughing after turnips, which proved ſo clotty, that he was forced to chop it afterwards with houghs, and then laid on horſe-dung all over the top; about a week after he rotted it, and the following ſeaſon proved very wet, ſo waſhed his top dreſſing in, and, by its cover, ſo hollowed the ground, as to return him a very plentiful crop of barley. A *Chiltern* incloſed field of four acres and a half, a field half gravel and half cl..y, had juſt before the laſt ploughing a great deal of dung laid on it, that was ploughed in; but, the ground riſing almoſt in whole or flitch thoroughs, buried the dung, and thus was the cauſe of a very thin crop of barley; which made the farmer ſay, he would ever after lay his dung on the top after ſowing. Now, how obſtinately ignorant this farmer was, may appear by his next neighbour's management, who every year, in the ſame ſort of ground, ploughs his dung in for barley, and commonly has very good crops; but then he takes care his ground is very fine and hollow, and his dung very ſhort and rotten, when he lays it on, elſe the weak roots of barley cannot ſtrike into it, to grow to any perfection. He was obliged to draw, to feed his ſheep with them

them on his meadow ground; but this ſpoiled his barley-crop; becauſe, where he drawed his turnips, the water lodged in the holes, ſoured his ground, and made it ſo unfit for barley-ſeed, that he had but a trifling crop in return.

In the pariſh of *Studham*, that lies part in *Bedfordſhire*, and part in *Hertfordſhire*, a great crop of barley was raiſed, chiefly by good ploughing, dreſſing, a large crop of turnips, and a kind ſeaſon of weather. The ſoil of this field was a gravelly loam, that was extraordinary well dreſſed with a flock of wether-ſheep, to the number of about three hundred; and, when it had been well folded, it was ſown with turnip ſeed, that produced a prodigious large crop, which being fed good part of the winter with fatting ſheep, they dreſſed it a ſecond time with their dung and urine, and thereby got the ground into extraordinary good heart; inſomuch that with only one ploughing of it in *March*, and harrowing three buſhels and an half of barley ſeed on an acre, he got nine quarters of barley from off every acre throughout the field, and the ſtraw was ſo ſtiff and ſtrong, that at harveſt it cut like fern. This account I had from one of this farmer's thraſhers, who proteſted to me, that he and another threſhed out twenty buſhels of this barley in one day; and he ſaid, that he was ſure, if he ſtrove hard, he could threſh

twenty buſhels of it out in one day himſelf, it yielded ſo well.

A very antient man, living in our pariſh of *Little-Gaddeſden*, told me, that in the year 1682, there was no rain till *Midſummer-day*, which cauſed the barley-ſeed to lie in the earth till that time, almoſt as dry as when it was ſown; but a great and violent rain falling, fetched it up, and there was a good crop at harveſt. And in 1744, it happened to be ſomewhat the ſame with barley and pea-crops; for both theſe ſorts of crops were thought by many farmers to be loſt by the long duration of dry weather: and yet, when great rains fell in *June*, they brought on prodigious large crops. But then the barley that theſe two years produced, were of ſeveral ripeneſſes at harveſt; becauſe that ſeed which lay loweſt in the earth came up firſt; that which lay next higheſt ſucceeded; and that which lay uppermoſt was greeniſh; ſo that there was abundance of bad malt made, and as bad drink brewed: for without good malt I defy the greateſt artiſt to make good drink: and how much this article concerns the health of human bodies, I leave at preſent the reader to judge.

Rolling.

In caſe your land lies rough and clotty, the ſpiky roller may be of ſervice to go before the harrows,

harrows, for reducing at once the ſurly glebe into a fine condition; but where this new invented excellent machine is wanting, then uſe the common wooden roller, and your harrows directly after that, and ſow your barley; but never roll it as ſoon as ſown, as ſome injudicious men have done, but roll it ſome time after when it is about half a hand high.

CHAP. III.

OF MANURING FOR BARLEY.

AS barley is a grain that cannot well grow too thick, it requires a more than ordinary aſſiſtance, to ſupport its crop, eſpecially when it is ſown in the old dry way; for, when the ground is not dreſſed or manured, there is little hopes of a good crop. Wheat, and moſt other grain, will proſper with leſs dung or manure than barley will; from hence it is, that many farmers have fallen into the miſtake of ſowing a great deal of ground with barley-ſeed, and been at the charge of half dreſſing it, in hopes that, with the help of a kind, warm, rainy time, they may enjoy a plentiful crop: but alas! many have deceived themſelves on this account, and been convinced by lamentable experience, that had they ſown but five acres where they did ten,

and put all the dung on the firſt, that they did on the laſt, they would have had a greater return at harveſt. What a loſs then muſt this be, enough to break a ſlender-pocketed farmer, who ventures to ſow twenty or thirty acres of ground with barley, under a half dreſſing? And eſpecially one that rents a vale-farm, becauſe, if he prepares not the ground, it is great odds, if his barley crop is not ſpoiled by two extremes of weather; one is, that in caſe a very dry ſummer ſucceeds, their ſtiff blueiſh, or black clayey, or marly ſoils will crack and ſtunt the growth of the barley-crop; and, if a very wet, cold one happens, the waters may ſtunt or kill a great deal of barley, which grows near the water-thoroughs; a caſe well known to the coſt and damage, ſometimes, of thouſands of vale-farmers, who, by the laſt means, have little elſe to mow beſides that barley which grows on the ridge part of their acre and half acre lands. Now to prevent theſe fatal diſaſters in a great meaſure, well dunging or manuring the land is abſolutely neceſſary for obtaining a full crop of this univerſal grain, by enabling the ſeed to make an expeditious firſt growth, in order to bring on an early head to cover and ſhade the roots againſt the violence and damage of too great heats and droughts, and withſtand the chills of inundations of waters, that frequently happen in the low ſituations

ations of vale-grounds, and ſtagnate the roots of the barley, as many of the hill-farmers are eye-witneſſes of, when they behold vale lands almoſt covered with water, that appear like part of a ſea.

If, as ſoon as your barley is ſown, you fold your ſheep on the ſame, it will cauſe it to branch, and grow faſter. But as this huſbandry may meet with its inconveniences, as well as be attended with ſucceſs, I ſhall here relate the two following caſes, which may be worthy your obſervation, viz. A farmer by me having had but a poor crop of turnips on a loamy ſoil, that before had been but half ploughed; when the turnips were eaten off, he gave the ground one ploughing and harrowed in his barley, on which he directly folded: But he had no barley in many places, and but a ſmall crop in the better part. The reaſon was, that, the land being ſour and clung, the barley-ſeed had not room to be buried deep enough by the harrows, ſo that the feet of the ſheep trod it out of the ground inſtead of treading it in; and this misfortune was the greater for the dry weather that followed after; becauſe by this, the ſeed was the eaſier diſplaced by the tread of the ſheep; whereas had it been a wettiſh time, it had not been ſo much raiſed out of the earth.

The other caſe was thus: at the ſame time I

had a field of turnips, that was a good crop, which, as ſoon as eaten off, I gave it only one ploughing, and harrowed in my barley-ſeed, on a loamy ſoil in *April*, and immediately folded on the ſame, till the remaining part grew above my ſhoes in this month; and it proved an excellent crop. The reaſon was, that my ground was made a fine tilth by ſeveral ploughings before the turnip ſeed was ſown, which by houghing and the great cover of the leaves, the earth was kept in ſuch a hollow condition, that the feet of the ſheep helped to ſink the ſeed lower, inſtead of treading it out of the ground. Therefore, none ought to fold ſheep on their barley, unleſs the ground is in a good tilth, and lies looſe; and then you will alſo avoid the common danger of ſpoiling the barley, by the feet of the ſheep, while it is chipping or ſprouting, becauſe, when the ground lies thus hollow, there is a ſufficient quantity of mould to cover and guard it from ſuch damage.

Likewiſe obſerve, that in gravels, and other binding grounds, if it is wet weather when the fold is over the barley, the grain will be ſo faſtened in by the mortariſing nature of ſuch ſoil, and the feet of the ſheep, that a great deal will never come out; however by taking care not to fold in rainy time, you may, on ſuch ground, carry on your folding, till the barley is five or ſix inches high, and near ſpindling, with great ſucceſs.

But,

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But, for further enriching barley land, ſome, that fat their ſheep on turnips, will every day dig up thoſe which have been ſcooped by them, and feed their ſtore-ſheep with them every night in the fold, which theſe ſort will greedily eat after having been kept all day on a ſhort bite of graſs; and thus ſuch ground will be three times dreſſed, once by the fat ſheep, next by the ſtore ſheep, and laſtly, by the ſame after the barley is ſowed; and indeed this is the beſt of dreſſing, not only for making the corn ſtand faſt againſt ſtorms of wind and rain, but alſo for cauſing a great crop, and preventing its being damaged by worms.

But, before I quit writing on this chalky ſoil, I have to obſerve, that turnip ſeed is often ſown on this earth to profit; and when a full crop of them happens to be eaten off with ſheep, cows, or oxen, then they give it only one ploughing, and ſow three buſhels and a half, or four of barley, on the rough ground, and harrow it in; then directly clap the fold on the ſame; and, if they can run it over the whole crop, they hardly ever miſs a rich return at harveſt, becauſe the feet, dung and ſtale of ſheep agree better with ſhort chalk, than with any other earth whatſoever, by their treading in the ſeed, and plaiſtering it, as it were, down ſo faſt, that the crops of barley will ſtand upright, when others that go without

this benefit will fall, be laid flat, and, perhaps, half the grain ſpoiled, as is often the caſe, eſpecially where the chalk is of a dry and very ſhort nature.

CHAP. IV.

SOWING BARLEY ON NATURAL GRASS.

A Gentleman who held a large farm of his own in the vale, having a meadow that did not produce that profit, which he thought it would do, if the ground was employed under crops of corn, came to a reſolution of ploughing it up. Accordingly in *March* he ploughed it up with the foot-plough, and a fin of iron fixed in its ſhare, thus: he began to plough it into a broad-land of nine ſteps wide, by firſt making a low ridge and ploughing on each ſide of it till he extended his ploughing to the before-mentioned dimenſions; and as he ploughed (as we call it) round the ridge, he ploughed the graſs turf down as thin as poſſible; and as ſoon as he had turned down one furrow with turf, he directly with the ſame plough turned a furrow of mould on the ſame as thick as he could, ſo that the graſs had no chance to grow through it. When he had ploughed all the meadow up in this manner, he harrowed

harrowed in barley-ſeed, which produced the biggeſt of crops. Thus he not only enjoyed a barley crop without loſs of time, but prepared, at the ſame time, the ſame ground for a wheat crop to be ſown at *Michaelmas* following; for the mould was laid on the turf ſo thick, that it rotted the turf by *October* next, when the barley ſtubble was ploughed up, and wheat harrowed in. I ſhould have ſaid there were two foot-ploughs employed in this work at a time, one followed the other; the firſt turned down the turf, and the other turned the mould on it.

CHAP. V.

OF THE SORTS OF BARLEY.

OF all white grain rathripe barley is the firſt that is fit to cut; and what I call rathripe barley, is *Fulham* barley, or *Putney* barley. This is the ſort of barley that is firſt ripe, and fit for mowing; by ſowing this a little later than the common barley is uſually ſown (which it will admit of beyond all other barley-ſeed,) the farmer avoided falling this year into two great misfortunes, that attended all or moſt of thoſe, who ſowed their common barley-ſeed the latter end of *February*, or beginning of *March*, which occaſioned the loſs of many crops of grain, as I have

have before remarked. Then thoſe farmers that ſowed this rathripe barley after them, had the pleaſure to ſee their crops grow to their great profit: for ſo it happened, that ſome had this ſort of barley ripe ſooner than their wheat, and got into the barns in the greateſt perfection, before they inned a ſheaf of wheat, and before thouſands of farmers got their common barley crops mowed; which, as I ſaid, occaſioned the ſpoiling of vaſt quantities of this neceſſary grain; and that which was ſaved tolerably well, made but a bad malt.

The *Fulham* barley in the ſouthern parts of *England*, in a hot ſummer and warm ſoil, is commonly fit for the ſcythe two or three weeks before any other, and in ten from ſowing time. If a *Chiltern* ſoil is well prepared for it by ſeveral ploughings and a good dreſſing, it may be ſown in *March*, to be ripe in *July*; but, if a turnip-ground, it may be ſown in *April*. I have known it ſown in *May*, and yet ſooner ripe than our common *Hertfordſhire* ſort. Rathripe barley has a great advantage of all others, for, by its quick growth, it is the leſs time abroad, and therefore leſs expoſed to great rains, which are enemies to the colour of this grain; and this is the reaſon why the *Chelſea* and *Fulham* farmers are thought to have the whiteſt, moſt

moſt thin-ſkinned, and melloweſt barley in *England*, from off their ſandy loamy land, that always fetches the greateſt price for ſeed and malt. I never knew barley in general ſo white as it was in the dry hot ſummer of 1741, becauſe little rain fell, and it was early ripe. To have barley of a pale colour and thin ſkin, a particular farmer, in our parts, obſerves to begin mowing his barley, when he perceives the ſmall black veins or ſtreaks are gone off the kernels, and the ears browniſh and half bent. Others more commonly obſerve to let it ſtand till the ears hang quite down, cloſe to the ſtraw, before they mow it, and take this for an indication of its being full ripe. About *Ware*, in *Hertfordſhire*, which lies near twenty-two miles from *Gaddeſden*, they make abundance of malt for ſupplying the *London* brewer, and are as careful of getting in their barley as they are of their wheat; and it is here that they commonly cut down their barley before it is full ripe; becauſe they are of opinion the kernel is thinner ſkinned than if it ſtood longer, the colour paler, and the quantity of flour the ſame; that the chalky, gravelly, and ſtony grounds produce the fineſt ſkinned and coloured barley, but that the deep moulds on a clay bottom, and ſtiff loams, yield a thick-ſkinned ſort of a reddiſh colour. With us we reckon the riper the corn the more flour it contains, and that moderate

moderate ſhowers, a little before mowing, plump the barley, and cauſe it to thraſh the eaſier out of the ear. Generally we begin mowing our barley after the wheat is got in; but, in the year 1740, barley was ripe as ſoon as wheat. I knew a farmer that formerly ſowed *Fulham* barley 24 miles diſtant from *London*, and commonly had it ſo early ripe, thin-ſkinned, and pale-coloured, that men from about *Windſor* uſed to come to *Hempſtead* market, and buy his and other ſuch, for making it into what they ſell at the grocers and druggiſts ſhops in *London* for *French* barley.

Fulham barley will obtain a larger body, and better colour, than any of an intire loam or clay: and as this ſort of barley is the ſooneſt ripe, and fit to mow even ſometimes in ten weeks time after ſowing, I have ſent this, and ſprat-barley, far into the north, as well as into *Norfolk* and *Suſſex*. For, by ſowing ſuch a ſeed, you will not only ſtand a chance of getting a crop of it into the barn ſooner than your neighbour, but the malt, made of ſuch barley, will, by far, exceed, in goodneſs, any other ſown in your country: this I aver for truth, as I have, as well as my neighbours, experienced it: and indeed we not only ſell the barley, when made into malt, but we ſell the ſeed of this *Fulham* barley, of the firſt and ſecond years growth, generally for two ſhillings

lings a quarter more than our common barley. And many farmers are glad to have it at that price, who have not the conveniency of ſending for it. Here then are ſeveral advantages attending the ſowing of this rathripe barley ſeed; as its growing ſooner into a crop than any other barley whatever, with a thinner and whiter ſkin, fetching a greater price than ordinary for ſeed, or in malt, is a beneficial change to the ground; and therefore will pay the ſower of ſuch ſeed to a great degree of profit, if he ſow a good quantity of land with this delicate ſort of grain.

By ſome, barley is ſown the beginning of *May*, oftener out of neceſſity than choice: As when the farmer, by multiplicity of buſineſs, cannot get his land into a fine tilth time enough, or that he has not eat his turnips off before now, or is retarded through the inclemency of weather. In all which caſes, the rathripe, or *Fulham* barley, is now the propereſt to ſow either in vale or *Chiltern* lands, becauſe it grows quicker than any other ſort; for, though it is ſown late, it is early ripe, and will prove the beſt of barley for malting, after being once ſown in loams or ſtiff lands, which gives it a much larger body than the ſandy ground it came from.

This rathripe barley will acquire, in a ſtiffer ſoil than where it came from, a larger body than the

ſeed

ſeed had: it will even in ſuch a ſtiff ſoil carry a thinner ſkin than common barley will. The rathripe barley will be ripe ſooner than any other barley whatſoever; and therefore has a much better chance to be got into the barn in a drier and finer condition than any other ſort of barley. It will ſell for more at market than any other. And laſtly, it will make better malt than any other ſort; provided it be only of one year's growth in ſuch ſtiff ſoil, from the time of ſowing the true rathripe barley-ſeed: not but that the virtue of this rathripe barley will remain two years, or more; but then the ſecond ſowing of it will not produce ſuch good effects as the firſt.

Sprat barley is ſown in wet and dry grounds; about *Eriff* in *Kent*, they ſow it in their rank marſhes, becauſe it is more hardy, and will not run into ſtraw like the common ſort; but I have ſeen it grow in drier ground about *Bridge* in that county, where they ſow it in ſuch land the latter end of *February*: three buſhels of this ſort will ſow an acre, when four muſt be uſed of ours, becauſe it has a two-rowed flat larger ear that requires more room. This barley will ſtand upright, as having a ſtrong ſtalk, when ours will fall down, and therefore is more conveniently mowed. Its ſkin is ſomewhat thicker than ours, but

but the kernel rather larger, is harder to thraſh out, and longer making into malt, but better for the diſtiller's uſe, as yielding more flour and ſpirits than others. It makes good pale malt drink, and better bread than ours, when it comes off a dry ſoil and is inned well; for with us we generally ſow the common barley, degenerated from the *Fulham* ſort. There is another kind I have ſeen, that is a large-bodied barley, and grows as ſuch in a bearded ear; but its naked kernel looks like wheat, and is certainly the beſt of barley for making malt, &c. The four-rowed big barley we ſow hardly any of, in the ſouthern parts of *England*, becauſe it is a ſmaller grain, and makes coarſer malt and bread than ours. But in the northern parts, it is much ſown for its hardy nature, and growing on poor land.

CHAP. VI.

OF THE TIME OF SOWING.

ABOUT the 12th day of *March* is the uſual time that vale-farmers begin to ſow barley, if the weather is in their favour; and this time they more ſtrictly obſerve of late in *Ayleſbury* vale, than they did formerly; becauſe many of them

them have ſuffered very much by ſowing their barley ſeed ſooner, in hopes to have their crop ripe before their neighbours, and get it into their barns in a dry ſeaſon, and with a fine pale colour. But the conſequence of too early ſowing barley-ſeed has often been attended with very ill effects; for, if rains fall for ſome time quickly after ſowing, and cold weather happens at the ſame time, the barley-blades will diſcover to the owner the poor condition its roots are in by their reddiſh fox-colour, which is a certain ſign of a lamentable poor crop at harveſt. And, if a vale farmer ſhould defer the ſowing of his barley-ſeed too late, then he is in danger of ſuffering by a bad crop another way; that is, if a long dry ſeaſon ſucceeds ſuch late ſowing, then the crop is the more likely to be attended with the foregoing misfortunes of growing in three degrees of ripeneſs.

I knew a perſon plough up one part of his turnip-field, as ſoon as the turnips were eaten off, and ſow the ſame on one ploughing with barley in *January*. And in *February* he did the ſame by another part of the ſame field, as ſoon as the turnips were eaten off; and in *March* the like by a third and laſt part of the ſame field. Now this he did to try a practice, different from any in the country; and although the ſoil of the field was a wettiſh loam, he had the beſt crop of the three,

from

from that ſeed ſown in *January*; and that ſown in *February*, was the next beſt; and that ſown in *March*, the worſt: and all this happened by means of a very dry ſummer that followed; by which, the two laſt ſowings of barley were deprived of that moiſture, neceſſary for the production of a full crop of this grain. But this was owing to the accidents of weather; for, in ſome years, the late ſowing of barley proves as much for the better, as ſuch early ſowing did this year. I have known a raſhy, ſharp gravel, ſown with barley after turnips, in *April*, and yet the owner had an extraordinary great crop, by the help of the following favourable wet weather.

The vale farmer thinks he runs a riſque of the leaſt danger, when he ſows his barley about the twelfth of *March*; for though, by this early ſowing, he is under the more danger of being hurt by floods and froſt, yet is he alſo entitled to the hopes of a moderate, moiſt time afterwards, that may bring on ſuch a timely head of barley as to cover and ſhade its roots ſoon enough to withſtand a dry ſummer.

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CHAP. VII.

OF THE QUANTITY OF SEED.

ON this account, I ſhall obſerve, that the quantity of ſeed ought to be proportioned to the nature of the ſoil, tilth, and the ſeaſon of the year. *Firſt*, as to the ſoil: On ſtiff loams and clays, ſome will ſow, in the common way, four buſhels on one acre; becauſe on this ſurly, cold glebe, the ſeed is very apt to bury, chill, and die; and therefore ſuch land ſhould be aſſiſted with good warm manure, as will enable the barley to grow thick, and kill the weeds, which, in ſuch ſour ground, are very apt to get rampant, and deſtroy the corn. On the contrary, in many of the light, ſandy grounds of *Norfolk*, and *Suffolk*, they ſow but one or two buſhels on an acre, and if they increaſe the quantity of ſeed, it is as the land is heavier: becauſe, as they ſay, their light, poor ground is not able to carry more; for, if they were to ſow it thicker, ſuch land would return an hopper-eared crop at harveſt, or in plainer *Engliſh*, a little ear with a few kernels.

Secondly, If a ſtubborn ſoil happens to lie in a ſour tilth, as it is very apt to do, there muſt be the more ſeed ſown, to allow for a conſiderable loſs, by the cover that the clotty part of the earth will cauſe, and ſo deceive the farmer, if he

he allows not enough to prevent this misfortune. On the contrary, when land is in a fine tilth, the leſs ſeed will do; and this is one reaſon why in ſandy grounds they ſow ſo little ſeed; for that in ſuch pulveriſed tilths, hardly one kernel miſſes coming up. *Thirdly*, If you ſow late, there muſt be the more ſeed ſown; for it is a ſtanding rule in huſbandry, that, the later you ſow any corn, the more ſeed ſhould be allowed; becauſe then the grain will never gather, branch nor kern ſo well as the more forward ſown, as being drawn up ſo faſt by the powerful attraction of the ſun, that it will run a-pace into ſtalk, and leſs into corn; and becauſe the fowls, in late ſeaſons, live moſtly on the grain ſowed then, as having little elſewhere for their ſubſiſtance; and here they have ſometimes a long opportunity to ſcratch with their feet and dig up with their beaks, the barley corns, before their blade is ſeen above ground, when a dry ſummer directly ſucceeds the new ſown grain, to the deſtruction perhaps of half the late ſown crop.

CHAP. VIII.

OF THE CHANGE OF SEED.

THE change of ſeed is of ſuch importance towards improving crops of grain pro-

duced by it, that many ſend for wheat, barley, peaſe, &c. to great diſtances. For this purpoſe, there are many ſacks of wheat carried out of *Hertford* and *Bedfordſhire* into *Northampton*, *Leiceſter*, and *Darbyſhire*, for the ſake of ſowing a ſeed that comes off a chalky ſoil, in a clayey or ſtiff loamy ſoil; ſo the *Hertfordſhire* farmers, ſeveral of them, ſend for *Fulham* barley-ſeed above thirty miles an end, and all by land carriage. Now, though we have ſandy, chalky, and gravelly lands juſt by home, yet we of *Little-Gaddeſden* chuſe to be at the extraordinary charge of ſending for this *Fulham* barley-ſeed, though we live thirty-four miles from it, and find our account in ſo doing; for as we ſow it in our ſtiff loams, from off a ſandy ſhort loam, it returns us a very early crop, with a kernel much bigger than that we ſowed, and is ſo natural for making true malt, that it is commonly ſold for two ſhillings a quarter more than our common barley is; but there are other reaſons for our preferring this *Fulham* barley-ſeed before all others. One is, that by getting a crop of ſuch barley, ſooner than ordinary, off the ground, it gives a farmer the opportunity to ſow the ſame land with turnips, early enough to enjoy a full crop of them. Another reaſon is, that we can (if the land is proper for it) ſow rape-ſeed. Another is, that, this barley being ripe before wheat,

wheat, it may be very probably got into the barn in the drieſt order, as theirs about *Fulham* commonly is, who thereby are maſters of the beſt of barley-ſeed. And it is this excellent quality that makes it a fit ſort to be ſown in the northern parts of this kingdom, becauſe this barley-ſeed, beyond all others, may be ſown late and mowed early. In ſhort, there are theſe two great conveniences attending this peculiar ſort of barley. The other is, that, notwithſtanding ſuch late ſowing, the crop, produced from the ſeed of this *Fulham* barley, will be ripe as ſoon, if not ſooner than the wheat-crop.

CHAP. IX.

THE GROWTH OF BARLEY.

BARLEY-crops likewiſe, in the year 1744, ſuffered very much, by three ſeveral accidents of weather, eſpecially that which grew in *Chiltern* countries: firſt, by ſnows; ſecondly, by droughts; and laſtly, by rains. Firſt, by ſnows, that began to fall on the 31ſt day of *March*, 1744, and continued ſnowing the greateſt part of the time between that day and the fifth of *April* following; ſo that the ſnow lay ſeveral inches deep in the ſnowing-ſeaſon, which diſappointed ſome from making an end of ſowing their

barley-ſeed, and others from beginning to ſow it till very late; for after the ſnow had fell, rainy weather ſucceeded, and obliged many to defer ploughing and ſowing till the 23d of *April*. However, ſome adventurous bold farmers, that had a great deal of ground to ſow with barley, run a riſque of the weather, and went on ploughing and ſowing of barley in their dryiſh ſoils, in ſuch ſnowy weather, but paid dearly for it; for they who proceeded in this manner, had not above half a crop of barley at harveſt; for ſnowy and wet weather is a great enemy to good ploughing and ſowing. Secondly, barley-crops very much ſuffered this year, by reaſon of a long dry ſeaſon, that preſently ſucceeded the ſowing of the ſeed; which cauſed that ſeed which lay loweſt in the ground to ſprout, and come up firſt, from the larger ſhare of moiſture the greater cover of earth occaſioned. The next that ſprouted was that barley-ſeed which lay ſomewhat higher: and the laſt, that which lay the neareſt to the ſurface, as having the leaſt ſhare of moiſture, and cover of earth; whereby were produced the ſeveral gradations of the ſeed's growth, and conſequently ſeveral degrees of ripeneſs at harveſt; that is to ſay, ripe barley, half-ripe, and unripe, or green barley; as was the very caſe of many thouſand acres of barley this harveſt: yet theſe muſt be mown, and mixed together; and in this condition;

dition, malt muſt be made of the ſame, after the barley has paſſed through its ſeveral degrees of ſweating in the mow. But what ſort of beer and ale muſt ſuch malt make?

CHAP. X.

OF THRASHING AND CLEANING BARLEY.

TWO men are more neceſſary to thraſh out barley than any other large grain; for there is no corn, that I know of, ſo liable to withſtand the ſtrokes of the flail, as barley, and this for the following reaſons: Firſt, when barley-ſeed is ſown late, which the farmers in many places are forced to do, becauſe of eating their turnips or cole off ſo late as *April*, it often happens, that dry weather ſucceeds the ſowing of it, and ſometimes continues four, ſix or eight weeks together. In this caſe there generally enſue two or three ripeneſſes in a barley-crop. Now ſuch a medley of ripe and unripe barley gives the thraſher occaſion to exert his ſtrength, and try his ſkill to the utmoſt; for, as there are not only many unripe corns in the ears, but alſo many ſmall dwindling half kernels, that ſtick ſo faſt, as hardly can be got out with all the labour that can be uſed by the thraſher, there muſt be con-

ſequently many left behind; but the more where only one man is employed in thraſhing, as I ſhall by and by further obſerve. In the ſecond place, when ground is dreſſed or manured in ſuch a rich manner, that, with the help of ſuch a rainy warm ſpring and ſummer, the barley runs into ſo great a crop, as to be laid before harveſt, it then commonly yields a lean thin kernel, that will be difficult to get out. Thirdly, it always happens, that, when barley is mowed before it is full ripe, it proves very hard to the thraſher to force it out of its ear. Fourthly and laſtly, if barley is thraſhed before it has done ſweating in the mow, it adheres very cloſe to its hoſe, and muſt require hard labour indeed to thraſh it clean out; becauſe it miſſes one part of that maturity or cure, that is requiſite to make it part eaſily from its hoſe and ear.

As to the firſt and ſecond, there wants no advice; and, for the third and fourth caſes, he muſt be an ignorant, or a knaviſh farmer, that ſuffers his barley to come under theſe misfortunes. Why I make uſe of the term knaviſh is on account of thoſe, who, to preſerve a fine pale colour on the barley-corn, thraſh and ſell it preſently after it is out of the field, without giving it time in the mow to ſweat, leſt the weeds that may be mowed and carried into the barn, with the barley, cauſe it to ſweat ſo much, as to

give

give it a higher colour than the farmer deſires. When it ſo happens, the brewer commonly ſuffers, becauſe ſuch unſweated barley-corn ſeldom ſprouts and throws out its ſpires in a right manner for making true malt: however, let barley be got in ever ſo good order, two thraſhers at a time, in one barn, are far more preferable to the owner than one; becauſe two flails follow one another with ſo quick a motion, that they keep it from jumping about, and confine the ears in the way of its ſtrokes much cloſer than a ſingle flail can; but the main reaſon why two flails are better than one in this work is, that they can beat and break the ails or beards of the barley much more than a ſingle flail can: a thing ſo neceſſary to be done, that, if barley is not delivered from theſe exuberances, it will fetch the leſs money at market; for theſe ails ſerve only to fill the buſhel, and do no ſervice to the buyer. After barley is thraſhed out of the ſtraw, it is for the moſt part thraſhed over again, in order to tail it, or, as I ſaid, to get theſe ails as clean off as they can; and, after all their labour in thraſhing of the ears and ſtraw with the flail, there remains ſomething to be done beſides to clear the barley of its ails; and that is, as ſoon as the ſtraw and its ears are well thraſhed, and carried off the floor, then, if the barley crop was inned in good order, the two thraſhers will

work on with their flails, and ſoundly beat the barley again, while it lies in its chaff, to break off theſe tails or ails that may remain on it; but, if the barley-crop was inned wettiſh, or otherwiſe ill, they commonly throw it firſt out of the chaff, and then ſlack the heap of corn not only once as it lies, but they turn it and thraſh it again and again, and all for clearing the barley of its pernicious ails or tails.

Of Cleaning of Barley.

In this and in moſt other countries of the *Chiltern*, they differ from the vales, in the manner of cleaning their barley. When it is thraſhed out, and the ails are beat and ſufficiently broke, they paſs the corn through a large-holed caving ſieve, for taking away the ſhort ſtraws and offal trumpery, in order to prepare it for cleaning, by throwing; and where there is room enough, two men may throw it well to clear it of its chaff, the ſeeds of weeds, and the lighteſt corns. If the barley was inned pretty clear of weeds, was full ripe at mowing, and had its due cure, by ſweating in the mow, then, perhaps, once throwing will be enough to make it ready for a further cleaning, by the great wooden and wired ſcreen; but, if it was ill inned, then it commonly requires a ſecond throwing, to take out thoſe light and lean kernels that would not drop

drop ſhort in the interſpace at the firſt throwing. When the barley is throwed enough, the next thing to be done is, to ridder or riddle it; for which purpoſe, a boy attends the man who ſieves it, by ſupplying him with more barley, as faſt as it is diſcharged by the ſieve, and ſo on till all is done riddling, and made thus ready for the great ſcreen; I ſay, a wooden and wired flat ſcreen that ſtands a little ſloping, the better to let out the duſt, ſeeds of weeds, and light kernels, and to diſtinguiſh it from the long worm-like wired ſieve; by which both wheat, barley, and oats may be very expeditiouſly cleaned in great perfection.

When all the barley is thus ſcreened, it is ready to put into ſacks for market; but, in caſe ſome ſeeds of darnel ſhould be left among the barley, as it often happens, becauſe theſe ſeeds are ſo near the bigneſs of a barley corn, that they cannot be eaſily ſeparated, it is not of great importance or damage to the barley; for that this ſeed is of ſuch a nature, as to add a ſtrength to the liquor, and make the beer or ale, brewed from ſuch malt, the more potent. But the main matter is to free it of its ails or tails; for, if theſe are left, in any quantity, among the barley, there will a lower price be bid for it, than others that are free from ſuch trumpery. It is this that makes the cleaners of barley oftentimes walk on the

the thraſhed barley, to tread on and break off theſe ails; and ſometimes neither thraſhing nor treading will thoroughly break off theſe ails enough to make the parcel intirely clear of them. One man will ſometimes thraſh and clean ſix or eight buſhels of barley in one day; and ſometimes it is work enough for two. But when barley has been inned well, and a plentiful crop has happened, one man has cleaned five quarters of it in one day, I may go farther and ſay ſix, but then it was all throwed out of its chaff before he began cleaning.

The Vale Way of cleaning Barley.

As to the thraſhing part of barley in vales, it is done the ſame as in *Middleſex* and *Hertfordſhire*, as I have before obſerved; they only vary in cleaning it; and that is thus: after they have thraſhed out the barley clean from the ſtraw, they rake the coarſe offal ſhort ſtraws off, and then paſs barley, chaff, and all through a ſieve, to take out the next offal ſhort ſtraws and ears that may remain among the corn and chaff: when this is done, they bring the wind-fan near the heap, and then with the help of a man to ſieve, and a boy to ſupply it, they fan as the barley runs out of the ſieve, and blow away the chaff from ſome of the lighteſt kernels into the yard; and for this purpoſe they lay the heap of barley, and place the

the wind-fan ſo near the barn-door, that it may be blown into the yard for fattening their ſwine, and feeding their poultry. This method of wind-fanning corn is not only practiſed in vale countries: it is alſo done much in the weſt country among their dry farms, and they take this method to fatten their ſwine in part for bacon; for a porker will fat alone upon the light kernels, and other trumpery that is blown out of the barn; for here they take all the care poſſible to fatten a great number of ſwine every year; becauſe almoſt their whole living depends upon this ſort of fleſh, as is evident in ſome meaſure by the common anſwer a traveller meets with at their inns, when he aſks what is for ſupper? Their reply is, Pork and cale, or cole, or more properly coleworts. Accordingly their butchers make no difficulty of killing bacon-hogs and porkers throughout the whole ſummer in many places of the weſt. At *Frome* I ſaw it done, I think in *July*, without fearing any damage accruing by the great heat of the weather, which in many other places proves a ſufficient reaſon to hinder the ſlaughtering of hogs, leſt they ſhould not make the fleſh take ſalt, and keep ſo ſafe and ſound as it will in cooler weather: but here, I ſay, they are not apprehenſive of any ſuch danger; becauſe, preſently after killing, they throw the fleſh into a tub of brine. But to return to

my

my ſubject. After the heap of barley is once cleaned by the wind-fan, and they perceive it will be to their advantage to fan over again the lighteſt part of the barley, they do it a ſecond time; and then the wind-fan leaves all the corn in ſo compleat a condition, as makes it fit to be put up in ſacks for a market-ſale. And thus two men and a boy will clean more quarters of barley in a day, than any two men can by throwing, riddling, and ſcreening in our *Chiltern* country; and, at the ſame time, clear the barley from ſoil and trumpery far better than ours can.

But, although I praiſe vale-farmers, and others, for their more expeditious and cleaner way of preparing wheat, barley, and other corn for market, than what we do in the *Chiltern* country of *Hertfordſhire* and in *Middleſex*, yet I cannot well help diſpraiſing them in their extravagant oeconomy of fanning their light corn and chaff into the farm-yard, becauſe they muſt in courſe waſte and loſe a great part of their chaff.

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CHAP. XI.

OF HARVESTING BARLEY.

OF this management none are more curious than the *Chelſea* and *Fulham* men, who, in caſe their barley is mown in a very dry hot time, will ſometimes cock it up in a dewy morning, on purpoſe that it may have a little and quicker ſweat in the field, to preſerve its white colour the better, and ſoften its kernel; for too great a ſweat in the mow is apt to make it reddiſh or black-coloured, and ſometimes give a muſty ſmell; and thus their barley looks white, bites mellow, has a good body, and ſmells ſweet in the higheſt perfection that ever I ſaw any. On the contrary, if the ſummer proves wet, and clover or other graſs or weeds grow thick among it (as they too often do) the barley muſt lie abroad, till, as I ſaid, they be dead dried, elſe it will acquire a red or dark colour by mow burning, which is of ſuch a great prejudice to barley, that it often hinders ſuch ſeed from growing, and then, I am ſure, it will be unfit for malt. Likewiſe if barley is grown in the field, it loſes ſo much of its farinous vital property as can never be removed. When either of theſe ill qualities happen to barley in any great degree, it will be beſt employed in feeding horſes, hogs, or poultry.

It

It is a general way throughout *Hertfordſhire*, and all other counties that I have been in, to rake and cock up barley, which we in a looſe manner carry home in a cart or waggon to ſtack or mow; but this looſe method is refuſed in *Kent*, where they are celebrated huſbandmen, and where, after their barley is mowed down, with the ſcythe and cradle, they make uſe of a ſort of rake, with five iron or wooden teeth in it, three of which are ſix inches long, and two nine inches long; with this a man rakes up a parcel of barley on each ſide of him into a heap, to be bound up in a bundle, with ſome of its own ſtraw, by another man that follows, and ſo goes on throughout a field. Theſe bundles they let lie in ſeveral heaps to be loaded in carts or waggons. Now, for juſtifying this procedure, they told me, they would wager, that they would carry in a field of barley ſooner in this way than in the looſe common way; and when they had it in the barn, they would alſo wager, that a man could thraſh more in a day of it, than another could after the uſual looſe method, becauſe by this means they could lay all the barley ears againſt one another, as we do wheat ſheaves.

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CHAP. XII.

PRODUCT OF BARLEY.

WHOEVER ploughs his ground often enough, whether it be a gravelly, chalky, or loamy ſoil, and dreſſes or manures it well, and ſows it in a dry ſeaſon, need not fear, by the bleſſing of heaven and theſe means, ſix, ſeven, or more quarters from an acre. I have known nine quarters to grow on one acre throughout a field of nine acres. A marſh-ſoil, in *Kent*, has yielded eleven quarters off one acre of ſprat-barley; and yet in ſome of their clay-lands in *Middleſex*, they ſeldom get more than two or three quarters off an acre, becauſe they ſow the wrong barley in a wrong manner. In the year 1737, I had ſeveral roots of barley that ſeemed each of them to produce thirty-ſeven ſtalks, and their ears had twenty-eight kernels each, one with another, in all 1036 kernels from one root.

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BOOK VI.

Of the CULTURE *of* OATS.

CHAPTER I.

OF THE SOIL FOR OATS.

THE ſoil for ſowing white oats is of the greateſt importance to be conſidered; for, if this ſeed is not ſown in a proper earth, the labour, money and time, will be in a great meaſure loſt. I knew a *Chiltern* farmer ſow white oats in a wettiſh loam, that returned him indeed ſtraw enough, but the oats were of ſo thin a body, that they were next to chaff; which ſo diſcouraged this farmer, that he never afterwards ſowed any more white oats, though his large farm contained various ſoils. On the contrary, I knew a farmer that lived at *Bragenham*, near *Leighton*, in *Bedfordſhire*, every year ſow no other oat, than the white ſort, becauſe they returned him

him prodigious crops off his ſandy grounds, even to nine quarters off an acre, and that of the largeſt ſort of kernels; but then he kept his land always up in good heart, by the help of the dung of many cattle, for this farmer employed both grazing-ground and ploughed ground, which gave him an opportunity to keep abundance of cattle, and them of returning him abundance of dung. Now this farmer was even neceſſitated to ſow white oats, becauſe this dry ground will not bear good wheat, nor good barley; therefore he chiefly ſowed rye, turnips, and white oats; and, for obtaining a large crop of ſuch oats, he never failed of making choice of the largeſt and cleaneſt ſeed; and it is by theſe means he uſed to ſell the beſt of oats from off a pooriſh earth, as his naturally was; but, when ſuch a ſoil of pooriſh land is enriched by the dung of animals, or by manures, it then in many parts of *England* agrees excellently well with barley and white oats; as is obvious to all who travel through the counties of *Suffolk*, *Norfolk*, *Kent*, and other parts, where, if they have judgment enough to make due obſervations in their way, they may ſee great quantities of ſandy land ſown with theſe two ſorts of grain, as thoſe which beſt agree with it; not but that a white oat will grow very well on gravels, chalks, and dry loams.

But the chief miſtake of all others is, the ſowing them in ſuch ſoils that are ſtrangers to the dung-cart, or other fertile dreſſing: for to expect a full crop of white oats off a poor barren ground, is the ſame as expecting a horſe will do as hard a day's-work, with part of a belly-full of meat, as thoſe who enjoy a whole belly-full; yet, as abſurd a thing as this is, it is the caſe of many ignorant farmers, who truſt ſo much to a wet warm ſummer for producing them a plentiful crop of oats, that they even are careleſs about the matter; and the more, becauſe oats will grow into tolerable crops, when hardly any other corn will, with little or no dreſſing; but he who dreſſes his ground on purpoſe, or he who otherways keeps it in good heart, has two to one the better chance of ſucceeding, as I am going farther to obſerve.

Dreſſing, as I ſaid, or not dreſſing ground on purpoſe for obtaining a full crop of oats, is not worth diſputing; the matter of fact is, whether the ground is in good heart, at the time of ſowing the ſeed; if it is, an oat-crop may, perhaps, pay as well as a wheat or barley-crop, in ſome particular years, when the two latter are cheap and the oats are dear, as it ſometimes happens to be the caſe; for ſix or ſeven quarters of oats, at ſixteen ſhillings a quarter, may fetch as much money as twenty-five or thirty buſhels of wheat will, at three ſhillings and ſix-pence a buſhel.

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CHAP. II.

OF PLOUGHING FOR OATS.

I Know ſome *Chiltern* farmers, who dare not ſow ſome of their fields with oats, unleſs it has had two ploughings, to give the oats room to grow up, and cripple the weeds. Theſe ploughings are alſo moſt neceſſary to be performed, in caſe a farmer ſows clover, or rye-graſs, or trefoil, or ſainfoine-ſeed among his oats; for, though many are ſo ſilly to ſow theſe ſeeds on only one ploughing of the ground, it often cauſes them to loſe their graſs-crop by it; whereas had the ſame earth been ploughed twice, and got thereby into a fine tilth, ſuch graſs-ſeeds have three times the chance of taking the ground; and, indeed, I do aver it for truth, that an oat-crop is the propereſt corn of all others, to ſow any of the graſs-ſeeds amongſt, if the ground is in good heart; becauſe the ſtalks of oats are apt to ſtand ſtiffer than barley, and thereby the crop of graſs is in leſs danger of being ſpoiled. When the ground is ploughed ready for ſowing of oats, they are to be ſown half on the rough earth, as the plough left it, and then the harrows are to follow; and when the ground is harrowed once in a place, the other half of the ſeed is to be ſown broad-caſt like the laſt, and harrowed in

long-ways and croſs-ways of the land, till the ſeed is well covered; but there has been a practice carried on by ſome particular farmers that I have known, who think it the beſt way to ſow oats by a ſingle throw of them over the whole ground, as believing they can, at ſuch a ſingle throw, ſow ſeed enough; and if a perſon tells them, they cannot ſow the ground thick enough in this manner, the anſwer I remember of one was, that his hand was a large one, and therefore could compleatly ſow the ground at one throw or broadcaſt; but their aſſurance has ſometimes failed their expectation, and found the contrary effect, by the oats coming up ſo thin, as to give the weeds room to grow between them, to the great damage of the crop. For my part, I always have my oats that are ſown in the broadcaſt mode ſown twice in a place, and find it far the ſurer way to have a full crop, than ſowing them by a ſingle thorough; and I have tried both ways.

CHAP. III.

OF THE TIME OF SOWING OATS.

THE beginning of *February*, and ſo on, plow up your land for oats; and, from the middle to the latter end of *February*, ſow and harrow

harrow in black-oats. They are generally ſown on one ploughing, after wheat or barley: formerly, ſeldom till *Lady-Day*, or the firſt week in *April*; but the preſent practice is to ſow them all *February*, as well as all *March*, but rarely after. Oats will thrive the better, if they have a good fine tilth to be harrowed into it, but they are ſeldom allowed it; otherwiſe than that the froſts ſhatter the ſurface of that ground, which was ploughed up for oats in the preceding *November*; and, by lying till *January*, or in this month, its top-part becomes looſe, and ſweet for oats to be harrowed into the ſame. It is a very hardy grain; and thoſe, that ſow them forward, will not only ſtand the beſt chance of rain to bring them forward, but they will corn the better; for, if oats are later ſown, it is a chance if the dry weather does not leſſen their crop; and, if wet weather follows quickly after ſuch late ſowing, it is a chance if they do not run into much ſtraw, and leſs corn.

February is the beſt month in the year for ſowing the black oat in the general; but I have known a farmer, whoſe ſoil was of the chalky ſort, give it only one ploughing with a foot-plough, and plough his oats in in *January*. Thus, by ſowing them under thorough, and a month earlier than is uſually done, he ſaid, he would not be catched as he was laſt year by a

dry ſummer, by ſowing his oat-ſeed in *February*, and he ſucceeded accordingly; for he had a great crop, though a dry time followed his ſowing the black-oat in 1740. But the caſe is altered, where a moiſter ground is to be ſown with oats; for, if ſuch a ſoil was to be ſown in *January*, and a hard froſt happens, the new ſpiring blade will be in danger of being killed; yet I knew a great farmer venture at ſowing a gravelly clay with blacks-oats likewiſe in *January*, and he had ſeven quarters of oats in return on each acre; but it was chiefly owing to a very mild ſpring, and dry ſummer that followed; however, this was a chance hap, and is not to be preſumed upon in the general way of ſowing oats; therefore *February*, or the very beginning of *March*, is the only ſafe ſeaſon for ſowing the black-oat.

The various natures of oats contribute very much to a farmer's conveniency. The black oat is reckoned the hardieſt oat of all others, and therefore is ſown ſooner than any, and ſo affects an early ſowing in *February*, that that month is accounted the beſt month in the whole year for ſowing it. On the contrary, a white oat is of a more tender nature, and more forward or quicker growth; which obliges farmers to ſow them late, even in the months of *April* or *May*. Now as a white oat requires a later ſowing than a black oat,

oat, it gives many *Chiltern* farmers an advantageous opportunity to feed their turnips, their rye, or their rapes off late, and yet not be deprived of enjoying a good crop of corn at the following harveſt: for when any of thoſe are fed off by ſheep, cows, or oxen, in this or next month, white oats may be ſown to a good purpoſe; and it is by this means of feeding turnips, rye, and rapes off late, that either rath ripe barley, white oats, or blue, or other tender peaſe may be ſown in this month, directly after ſuch a crop is got off; when it is an unſeaſonable time to ſow black oats, becauſe they will run into ſtraw or ſtalk much, but little into corn. But white oats, having a very ſtrong, large, flaggy ſtalk, and ear of a great bigneſs, employ the fertility of the earth for nouriſhing theſe its branches to that degree, as to hinder its too luxuriant growth, and prevent the violent attractions of the ſun's heat, from leſſening its multiplying into plentiful crops of corn, when the more naked ſtalk of black oats, if ſown ſo late, would be overcome by them, and be rendered a poor crop; becauſe the roots of the white oat grow under a ſort of cover or ſhade that they receive from the green broad blades that always accompany their ſtalks; which leads me to make obſervations

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on that earth which is moſt proper to ſow white oats in.

The black-oat is for the moſt part ſown in *Hertfordſhire*, and other *Chiltern* countries, for the particular reaſon of its ready growing and thriving in ordinary lean ſoils; for in *Chiltern* countries we do not pretend to vie with vales for goodneſs of earth; and therefore when they ſow oats (which is but ſeldom) they ſow the white-oat for the moſt part, that requires the beſt ground to plough in, as I ſhall more particularly obſerve in the next article. A black-oat has a leſſer body than the *Poland*, or white-oat, and has but two hulls or ſkins, where the white-oat has three. A black-oat, by ſome is accounted a ſweeter oat than the white-oat. Others are of a contrary opinion. In mine, I think no oat exceeds a good black-oat for making the ſweeteſt of oat-meal, and as white, or whiter, than that of a white-oat. I have ſown a white-oat, but left them off for the following reaſons: Oats are commonly ſown in *Hertfordſhire*, and moſt other countries, without any dung or manuring the ground for them, as being a *Lent* grain, that moſt commonly are ſown after a crop of wheat or barley.

Of Sowing Oats in March.

Though *February* is the propereſt month, of all others, to ſow oats in; yet there are thouſands of

of acres ſown in *March*, eſpecially where the ſoil is of a clayey nature, or lies in a wet ſituation; for in caſe even a gravelly, chalky, ſandy, or loamy ſoil lies very near the ſprings, or is otherwiſe ſubject to ſuffer by water; ſuch ground, I ſay, is better ſown with black or white oats in *March*, or *April*, than in *February*; for, as hardy a grain as this is, it may be chilled and killed, where the ſeed is ſown too ſoon in land expoſed to inundations of waters; for which reaſon hundreds of farmers, in *Ayleſbury* vale, dare not ſow any oats in that ground, that is of a clayey nature, and lies in ſuch low ſituations as ſubjects the corn to the damage of waters: therefore unleſs the ſoil is of a dry nature, no ſort of oats ought to be ſown in *February*; and, if it is of the wetteſt ſort, then *March* affords the farmer the ſafer opportunity.

And now may be ſown either the black, or white, or reddiſh oat, with or without any dreſſing or manure; for an oat will proſper where hardly any other corn will, for which reaſon, the oat is become the chief, and the moſt profitable corn for ſowing and proſpering in the remoteſt parts of the north, where ſome ſow the reddiſh, others the white, and others the black oat. But the reddiſh oat, which is much ſown in *Derbyſhire*, gets more and more into reputation for an extraordinary good oat. In *Scotland* thouſands

of

of acres are ſown with a ſmalliſh white oat, that are not ſo large as thoſe ſown more to the ſouthward. The white oat is the tendereſt ſort of all others, and therefore ought not to be ſown before *March*, or in *April*; and then in a ſand, in a chalk, in a dry loam, or in a ſtiffiſh earth, ſo it lies not wet; and when it is ſown in any of theſe ſoils, and they be in good heart, a white oat will flouriſh and become a great crop. But I do aſſure all thoſe who ſow this oat, that though all the oat tribe are great peelers or robbers of the goodneſs of the earth, yet this will do it beyond all the reſt; for this oat has not only a ſtrong large ſtalk and ear to nouriſh, but alſo a broad flag beſides, that keeps company with the ſtalks. It is therefore that in moſt of our *Hertfordſhire* grounds, as well as in ſeveral other *Chiltern* countries, they ſow the black oat, for its great yield and leſs ſuction of the earth than the white oat draws; for it is a folly to ſow a white oat in a poor ſoil.

And although moſt farmers in *Hertfordſhire*, and elſewhere, never dreſs their land directly for ſowing it with oats, there are ſome that wiſely dreſs their ground with dung or compoſt on purpoſe to nouriſh an oat-crop; and this they do very judiciouſly, becauſe dung, laid on to aſſiſt an oat crop, will take off that rankneſs that would canker, or ſmut, and ſpoil a wheat crop in

in ſome ſort of ſoils, if laid on the ground juſt before the wheat is ſown; which, by this piece of forward huſbandry, is delivered from theſe miſchiefs; for the ground, being thus enriched by dunging, will certainly produce huge crops of oats, and a huge crop of oats will certainly clear the ground of weeds, and leave it in a moſt fine hollow tilth condition.

It is a very unuſual thing, but two farmers would boldly venture to ſow their ground in *January* with oats, in order to have their crops off very early; accordingly, they ſowed their gravelly clayey grounds with black oats, and had a great return at harveſt, for, as it luckily happened for them, the dry ſummer of 1741 ſucceeded ſo well in their favour, that they had ſeven quarters on an acre of black oats.

A neighbour of mine ſowed his oat-ſeed thin and late in a cold, wettiſh, flat land, which was a ſour tilth. The conſequence was, he had no more than two quarters off one acre, when his next neighbour, who ſowed early on the ſame ſoil, had four quarters off an acre. Sow early and have corn, ſow late and have ſtraw.

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CHAP. IV.

OF THE SORT OF OAT.

THERE is a *Dutch* oat that has a thin ſkin, a ſhort, plump, white kernel, makes good oatmeal, and more than the common black oat, becauſe of its thin ſkin, which gives room for the more flour, grows with a reddiſh ſtalk when near ripe, and not very tall. It is ſown about *Croyden* in *Surrey*. The *Scotch* white oat is alſo a good hardy oat, but, in *Hertfordſhire*, we for the moſt part ſow the black oat, which we reckon has the thinneſt ſkin, and makes the ſweeteſt oatmeal. It is allowed by all that a white oat peels and impoveriſhes the ground more than a black oat, although either of them do it ſo much that we are obliged to make a fallow after them, to recover the ground, eſpecially after the large *Poland* white oat.

CHAP. V.

OF THE QUANTITY OF SEED.

THE ſowing of white oats deſerves a particular regard, for there is this difference between the white oat, and the black oat: the black will gather and branch much more than a white oat, and, therefore, if an equal quantity of

of ſeed was to be ſown on an acre of ground, the farmer may be deceived in his expectation at harveſt; wherefore, the *Bragenham* farmer I have been mentioning, does not ſow leſs than five buſhels of white oats on every acre, in order to allow for the deficiency of their gathering and branching; which is one more than we commonly ſow in our loams, when we ſow them with black oats; for with us about *Gaddeſden*, we ſeldom ever ſow more than four buſhels on an acre of theſe black oats; but then, whether they be white oats or black oats, they ought to be ſown twice in a place, over the whole field; for, many obſtinate and ignorant farmers have ſuffered by ſowing them only once in place, as truſting to the largeneſs of a ſower's hand, to fling enough out of it at one throw. And ſuch a double ſowing is of the greateſt importance, for on the thick growth of a crop very much depends the bigneſs of it at harveſt, becauſe by ſuch a thick growth the weeds are overcome and kept down from hurting the oats; and, likewiſe, the heats and droughts kept the better out from parching up the roots of the oats, which, in too thin a crop, often proves fatal to it; for, when oats are ſown in the random or broad-caſt way, there is no more mould allowed their roots than what the harrows and roll give them; which, at beſt, is but a ſu-

perficial and moſt thin covering, and, therefore, the more liable to ſuffer by droughts, which is different from the way of ſowing oats in drills.

In ſowing all ſorts of oats, it particularly concerns a farmer's intereſt to adjuſt the quantity of their ſeed, as well as that of any artificial graſs, that is to be ſown among them. On this account he ought well to conſider the nature and ſtrength of his ſoil. If oats are to be ſown in a ſand, or a gravel, or a chalk, without any graſs-ſeeds, there ought to be the greater quantity of oats ſown, the better to enable the green crop to lodge and ſhelter the water of rains and moiſture of dews, for keeping ſuch dry earth in a moiſt condition; but then, if ſuch gravel, chalk or ſand is in ſo poor a heart, that it is not able to nouriſh and bring ſuch a poor crop to a full perfection of growth, it will ſuffer by growing in ſhort ſtalks, and poor lean ears, and thin kernels, and is thus the more unfit to be ſown with clover or any other artificial graſs-ſeeds.

CHAP. VI.

PRODUCT OF OATS.

THIS grain, if encouraged by a ſufficient quantity of dung or other manure, will return great quantities at harveſt. One acre has produced

produced ten quarters of white oats. But, of the black ſort, our uſual quantity in *Hertfordſhire* is about half ſo much without dreſſing, for I never knew any dung for oats in our parts; if they did, there would undoubtedly be ſeven or eight quarters off an acre of black oats. An oat is ſaid to root deeper than a pea.

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BOOK VII.

Of the CULTURE *of* PEASE.

CHAPTER I.

PLOUGHING FOR PEASE.

ONE old rich farmer, who I well know to have gotten an eſtate, by his long holding a very cheap farm, and by improving it in many branches of huſbandry, yet was ſhort on one main article; and that was by his harrowing in all his hog-pea-ſeed on the rough ground, which though it would have been abſolutely right management, in a clayey loam, an intire loam, and a gravel, yet was wrongly done here. And this farmer, after holding a farm above forty years, was at laſt convinced, that in a ſhort, looſe, chalky ſoil, as a great deal of his ground was, he ought to have ploughed his peaſe in, and not only harrowed them in on his rough earth, as the plough left it; however, in the year 1742, he ſowed all his hog-pea-ſeed on the chalky land, before

before it was ploughed in the broad-caſt way, and then ploughed them in with a foot-plough, which covered all his ſeed-peaſe, and thereby defended them not only from the beaks of field-fowls, but alſo a worſe misfortune that oftentimes befalls pea-crops; and that is the drought of long dry ſummer ſeaſons, which generally, in this dry, huſky ſoil, parches the pea-roots, if the ſeed was only harrowed in. This farmer, therefore, got wiſe enough to prevent, in a great meaſure, this fatal misfortune, though not till the age of ſeventy-two years; and by the ſucceſs that attended this better way of ſowing his ſeed under thorough, he is reſolved to continue it, whilſt he lives; but, by the way, I am to obſerve, that he gave his chalky ground only one ploughing in all, and that was done at the time of ſowing his pea-ſeed; for, if he had winter-ploughed it, for this purpoſe, he had been in the wrong of it, as I am going to ſhew of this work in other ſoils.

In the vale of *Ayleſbury* moſt of their land, that always lies ridge and thorough, is of a bluiſh, loamy clay, which, though of a ſtiff and very hard nature in the ſummer dry time, yet, on a little froſt, will ſhoal and crumble into a ſhort body and ſurface, and lodge the waters to that degree, if it is winter-ploughed, as to greatly damage either beans, peaſe, or thetches, that

may be ſowed in *January*, or in *February*. Wherefore they are judicious enough to ſow theſe *Lent*-grains on the ſtubble of wheat, or barley, and then give it one ploughing and harrowing, for compleating their ſowing. Thus alſo in the vale of *Derby*, their farmers are very ſenſible, that winter-ploughings would do their ridge lands a great deal of harm, becauſe the rains would waſh away great part of their goodneſs, if ploughed twice for peaſe or beans, and got into ſo looſe and hollow a condition, as to let the air and ſun in that would thus dry up the pea-roots.

In the vale of *Derby*, their earth is a reddiſh clay, of a contrary colour and nature to that in *Ayleſbury* vale, and therefore they ſay, they ſhould loſe their crop, if they plough it twice for peaſe or beans, becauſe, likewiſe, the waters would have ſo free an acceſs to, and entrance into, as to make a lodgement in their ridge-lands, load them with it, and cauſe the harrows to harrow their ſurface into a marſh after the ſeed is ſown; and the more, if it ſhould rain in the ſowing time, to the loſs of the crop.

Wherefore, as their ground in *Derby* vale is a red and ſtiffer clay by far, than that in *Ayleſbury* vale, their farmers are obliged to take a different method to ſow their peaſe or beans. In *Ayleſbury* vale, as I ſaid, they plough their peaſe and beans in;

in; but in *Derby* vale, as ſoon as they have ploughed their land once, they ſow their peaſe and beans broad-caſt all over the rough ground as the plough left it, and harrow them in with one ſingle drag-harrow as they there call it: by which mode of ſowing, the pea and bean ſeed falls in between the furrows, and a great deal of mould falls in upon them at harrowing-time, and thus becomes a food and great nouriſhment to their crop all the ſummer after.

Take care you do not bury your peaſe and barley in your gravelly grounds, when you ſow them broad-caſt and harrow them in, for theſe ſoils have often, by the ill management of farmers, been the ruin of many crops of theſe grains, by the binding quality of the gravel, when great rains have fell on them preſently after the ſeed has been ſown and harrowed in; which misfortune to prevent, the judicious ſort will plough, ſow, and harrow in their peaſe, or barley, every day, as being a much ſurer way to be free of ſuch a caſual loſs, than to plough on and not ſow till a whole field of ſeveral acres is ready and is ſown all in one day; becauſe, by daily ſowing of the pea-ſeed, the hazard is not near ſo much, as when ſeveral acres are ſown and harrowed in at once; and if the ſeed is bound in by the running like a pancake of the ſurface, when waſhed by great rains, the peaſe and barley ſprouts are

kept in, and often cauſed to rot, becauſe they cannot make their way out through the hard, cruſty topearth of gravelly grounds. To prove this, I ſhall recite a caſe as it happened to a farmer at *Cheſſum* in *Bucks*, where having ſowed his ſeed broadcaſt in ſuch a ſoil, and harrowed them, great rains fell preſently after, and bound them in ſo tight, that there was little hopes their ſprouts would ever have gotten through the top earth. But, as it luckily happened for this farmer, a neighbour's team being at harrow, in the next field, run away with the harrows, and got into this man's field that had been ſown with peaſe; and it was plainly obſerved, that, where the harrows were drawn, there was a ſecond crop of peaſe; but, where they miſſed, there was none. Hence it is, that ſeveral farmers take the caution, to give their pea-crop, ſown in the broad-land faſhion, a harrowing juſt as their heads are peeping out of the ground, which not only looſens the earth, but moulds it up to the pea-heads, and oftentimes greatly improves the crop.

It was at *Michaelmas*-time, that a farmer, at *Dagnal*, in *Bedfordſhire*, within a mile and a half of my houſe, took poſſeſſion of a farm, and being a new tenant, with a great deal of buſineſs to do at entrance, he had not time to plough up a clover-lay that he came to, and therefore could not get it ready for ſowing wheat in the ſame; and,

and, when afterwards he had more leizure, he thought the ground would be too ſour, and the wheat expoſed to the ſpoil of birds and froſts, to come to profit; on this he came to a reſolution of giving the clover-lay one ploughing in broad-lands, and let it lie all the winter for the turf and roots of the clover to rot, till *February* following, when he harrowed the ſurface plain; and, after it had lain ſo about a fortnight, he ſowed horn-ſhavings all over the ground, and ploughed them in croſs the laſt way of ploughing; then he immediately ſowed it with peaſe, and it proved a vaſt crop; for this grain in particular, loves both a hollow earth and a hollow dreſſing.

Here were two faults attended theſe crops of peas: one was, that the farmers did not keep their ground in ſufficient ſtrength of heart; if they had, the richneſs of the ſoil, very probably, would have forced the peas into ſuch a quick growth, as to have cauſed them to grow faſter than the ſlug could have eaten them. The other was the farmer's rolling his peaſe in the day-time; which was wrong acting, becauſe then the ſlugs were moſt of them retired into their ſubterranean cells, and lay ſafe out of the ſqueezing of a roll. Therefore he ſhould have obliged his ſervant to roll his pea-crop about one or

two o'clock in a morning, when the ſlugs were moſt buſy in feeding on it; then he might expect to have had all, or moſt of them, ſqueezed to death, by his eight-feet-long heavy wooden horſe-roll, and have preſerved his peas.

CHAP. II.

OF THE SORT OF PEASE.

MANY are the different ſorts of peas that are ſown in this kingdom, whereby the farmer has his choice for a proper ſoil, clime, and ſeaſon; but for my part, I ſow at preſent only three ſorts, that I have found to anſwer beſt; and they are the horn-grey, maple, and blue-pea. The firſt is accounted, with a great deal of reaſon, the hardieſt of hog-peas, and is of a good ſize, and preferred to all others for the chalky ſoils, where it will admit of being ſowed forwarder than any other, which is a perfection very much in favour of this ground; becauſe by this means it enjoys all the ſpring wets in this dry ſoil, and thereby obtains an early head that covers, ſhades and defends the earth about them from the ſcorching heats of the ſummer, that otherwiſe would dry up and wither their roots: alſo on gravels this pea has the like ſucceſs, which makes the farmer ſow them in theſe two ſoils

ſoils preſently after *Chriſtmas*, where they ſtrain them in after the plough in broad-lands, and harrow them afterwards, till they are almoſt ready to appear; inſomuch that about *Ivingboe*, and many other places, they ſow no other ſort but this in their chalks and gravels, on one ploughing after wheat or barley crops.

The maple is a larger and ſweeter pea for the hog, but ſomewhat more tender: this is chiefly ſown all over the *Chiltern* country in *March*, and is found to make the beſt returns of all others in both grain and ſtraw; and therefore the preſent practice moſtly runs in an equal mixture in theſe two ſorts of peas, that are ſown together about the ſeventh of *March*, in ſeveral ways and in ſeveral ſoils, and this for the better aſſurance of a crop; for if the maple ſhould miſs, it is hoped the horn-grey will hit: which is having two ſtrings to the bow; as is alſo often done after the very ſame method, by ſowing a mixture of ſeven pecks of peas, and ſeven pecks of beans on an acre: this way proved exceeding well this ſpring, when the beans were the beſt crop ever known; while many of the peas were ſpoiled by the chill of wets and froſts that attended the whole month of *May* 1732.

The blue pea is a more tender ſort, and is ſown both earlier and later in *April*, on prepared ground that has been twice ploughed: this pea

oftentimes

oftentimes returns great crops, is a moſt ſweet ſort for any of the culinary uſes, and alſo fats ſwine in a very ſhort time; but the haulm or ſtraw of this pea is not ſo good for horſes, as that of the horn-grey or maple; becauſe this is apt to gripe them, and bring on the yellows, that ſometimes prove fatal if not taken in time; and is firſt diſcovered by the white of the eyes being turned yellowiſh; for which, bleeding, and cordial, ſweetning drink is the beſt remedy. This misfortune is ſaid not to be owing ſo much to the ſtraw, as the peas, that are generally left in after thraſhing, which being of a ſofter nature than all other peas, is thereby more endowed with this pernicious quality. But there is a great difference in the nature of this pea; ſome of them will boil in a little time to a great ſoftneſs, others require a longer time, and ſome will never boil ſo ſweet and kind: the reaſon of this I take to be owing to the particular juices of the earth wherein they grow; for that of the ſtiff clays is commonly churliſh and ſour; that of the loams much better; but that of the chalks, ſands, and gravels exceed all others, in ſweetneſs and quality; therefore the beſt boiling peas are allowed to come off the three laſt ſoils.

The horn-grey is beſt to grow with beans, becauſe it will endure to be ſown with them at *Candlemas*, agrees with all ſorts of ground, and

will better bear with one ploughing than any other: theſe two kinds have each their reciprocal benefits; for the pea will ſhade the roots of the bean, and keep off the parching heats and droughts of the ſun and wind. The bean alſo will, by the ſtrength of its upright ſtalk, keep up the weak, bending haulm of the pea, and cauſe it to kern and ripen kinder and ſooner.

The vale-men in their open, low fields, whoſe ground is in heart, will not ſow peas alone, or beans or peas together (which they call half-ware) becauſe then the ſheep cannot weed amongſt them, and eat up the wild oat and curlock which often infeſt them; but in the clean beans they turn in their ſheep till bloſſom-time to eat up theſe weeds; then they take them out, leſt they rub them off.

This I was an eye-witneſs of. The father-in-law ſowed his incloſed, gravelly, loamy field broad-caſt with hog-peaſe, and ploughed them in with the pecked ſhare two-wheel plough; which, becauſe he ploughed the ground but once, and a baſhing wet time ſucceeding, bound the earth and buried the peaſe. But the ſon-in-law acted wiſer, for in the ſame ſoil, in a field near his father's, he likewiſe ſowed his hog-peaſe in the ſame manner, but ploughed them in with a foot broad-ſhared plough, which covered them ſo ſhallow, as only

juſt

juſt to cover them. Both which ways were intended to ſhelter the peaſe from too much drought. The reſult was, that the father-in-law loſt his crop, but the ſon-in-law had a full one, though both were ſown much about the ſame time.

There was a gravelly, loamy, incloſed field, ſown in a random way with the maple-pea, about the twelfth of *April*, and harrowed in on only one ploughing, and, a kind ſeaſon following, three acres of them yielded near an hundred buſhels. But ſuch late ſowing of maple-peaſe is too great a hazard for a prudent farmer to run, for thoſe ſorts ſhould never be ſown later than *March*, leſt they run into ſtraw, and not corn; as it happened in another caſe at *Wardſcomb*, near *Ivinghoe*, where a farmer ſowed ſome grey horſe-peaſe on the thirtieth of *April*, and had only ſtraw in return. Had he ſown blue peaſe in their room, or the *Eſſex Kodeing* white-pea, or beau-dye, or ſome others, it is very likely he might have had a good crop. The puffin, the kid-pea, &c. are tender ones, and ſo tender, that, if they go once away, in clay-ground, by cold weather, they never recover. But the horn grey is ſo hardy as to come and go (as we call it) ſeveral times, and yet be a good crop at laſt.

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April gives many of the *Chiltern* farmers an opportunity to improve their land, by ſowing it at this time, with a ſort of peaſe proper for the ſeaſon of the year; for on this very much depends the ſucceſs of a pea-crop; a truth often proved by the fatal effect of a wrong conduct, when it is employed in ſowing that ſort of peaſe in *January*, *February*, or *March*, which ſhould not be ſown before *April*, becauſe their tender nature renders them unable to withſtand the ſevere aſſaults of northerly and eaſterly winds, which in theſe months generally blow in a more nipping and ſharper degree than at any other time of the year. From hence it is, that, though the ſoil is duly prepared, and the ſeed got in perfection, and the ſowing of it performed in the beſt manner poſſible, yet all this will not ſecure a plentiful crop of peaſe, if the farmer ſows a wrong ſort at an improper time. After many years experience, we *Hertfordſhire* farmers have found none to anſwer our intereſt ſo well as the horn-grey hog-pea, the maple, the blue, and the white. It is theſe four ſorts that we chiefly ſow in our incloſed fields, in refuſal of all others, becauſe we find, by repeated experience, that theſe beſt agree with our various ſoils, when ſown, in a proper manner, at the right time of the year. If we ſhould ſow a horn-grey pea in *April*, the farmer would deceive himſelf

in

in his expectation of a corn-crop, becauſe, inſtead of that, he would get little elſe but ſtraw; for this pea is of ſo hard a nature, and ſo ſlow of growth, that it requires ſix or ſeven months to ripen into a plentiful crop of peaſe, when a blue pea, and others as tender as that, will be in perfection for mowing, or hooking, in four months; ſo different are the qualities of theſe two ſorts of peaſe, though both grow the ſame year in the ſame ſort of ground. It is, therefore, that, if a blue or other tender pea was to be ſown in the month of *January* or *February*, the crop would conſequently be loſt by the ſeverity of the weather, becauſe the *Hampſhire* kidpea, or kidwell, the maple, the *Eſſex* roading, the puffin, the *Spaniſh* mulatto, the rouncival, *Dutch* admiral, the marrow-fat, the non-pareil, the blue union, &c. are all of them of ſo tender a nature, that, if they are thoroughly pinched and nipped by a very hard froſt at root and ſtalk, they can never recover a right growth again, but will ſhew their ſickneſs and decay by their red and withering heads. At beſt, a pea-crop is ſubject to more fatal accidents than any other corn we ſow beſides; inſomuch, that, in the random, common, broad-caſt way of ſowing pea-ſeed in fields, we hardly get a full crop of them above once in three years, becauſe the cold, the drought, and the ſlug are all ene-

mies

mies to pea-crops, when they happen to be in too great a power for their regular growth; which leads me to write on their particular damage, for the knowledge of the diſeaſe is ſometimes half the cure.

About *Rickmanſworth* in *Hertfordſhire*, they ſow a forward hog-pea, called here the puffin-pea; which being fit to cut in *July*, or the beginning of *Auguſt*, they commonly plough and harrow in cole ſeed on the ſame land, for their ſuckling ewes to feed on them the winter, or ſpring following, that by ſuch juicy food they may expeditiouſly fat their houſe-lambs for an early market at *London*. Now the great *Spaniſh* murotto-pea, that was ſown in drills at three feet and a half diſtance, after being well houghed and ſeveral times turned in the field, is in hot ſummers ripe for ſeed about the beginning of *Auguſt*; and ſo are the *Carolina*, *Barns*'s maſters, marrow-fats, and other forward ſorts, that were ſown in drills out of the hopper of the three-wheel plough, or out of a hand-box; both which are much truer ways than out of the naked hand: but the drill plough I muſt here once more recommend, as the beſt inſtrument that ever was invented for tenants to make uſe of, for getting a livelihood and paying their rents; yet, where this could not conveniently be had, I have ſeen them make

a drill

a drill with the two-wheel turnriſe-plough, whoſe chizzelly point is made from one inch and a half to two inches breadth, and then follows a man with a long box in his hand, out of which the peaſe run leiſurely and gradually into the drill; and when all the field is ſown, they harrow long and croſs-ways. At another place, they ſow their grey and yellow ſorts of peaſe in drills, at twenty inches aſunder, in fields, and afterwards employ the horſe-break between the rows, and then immediately uſe the hand-hough to rake and hough the earth up to the roots of the peaſe; and this they do twice or thrice in a ſummer, beſides turning the rows to the ſun now and then for their better ripening. The *Cobham* grey is the lateſt ripe. If the poor-land white pea is ſown three years on the ſame ground, it loſes its colour. With us in *Hertfordſhire*, we ſow the horn, and *Windſor* grey hog-peaſe, that are early ſown, and late ripe. The maple-pea, for either hog or boiling, we ſow in *March*, and it is ripe in *Auguſt*. The *Hampſhire* kid and the beau-dye are alſo ſown for either uſe; but the blue pea is a very convenient ſort for our farmers, becauſe we ſow them late in *April*, and cut them in *July*, or *Auguſt*. The *Cobham* grey is a large, fattening hog-pea, generally ripe with wheat, but is apt to ſhed, if they ſtand a little too long before they are hooked. In *Eſſex*, about *Chelmsford*,

Chelmsford, they ſow the *Cobham* pea broad-caſt in their clay land, and the yellow pea in their light.

The common and rouncival maple pea, may be called a hog-pea, or a boiling pea: In *Hertfordſhire* we ſow it as a hog-pea, but it is made uſe of in many places as a boiling pea; and where they do this, they call it a grey-pea, as in *London*, where the women boil it, and cry it about the ſtreets for grey-peaſe. It is of a good ſize, and a tender ſort, and therefore we *Hertfordſhire* farmers, that know its nature, dare not ſow it till the latter part of *March*, leſt the froſts take it, and the crop be ſpoiled. For this reaſon it is, that the maple-pea is not fit to be ſown in *February*, and they that ſow in that month, or in the beginning of *March*, run the greater riſque of the crop's being damaged by the cold weather that generally blows at that time; but, when it is ſown on a pretty looſe loamy earth about *Lady-Day*, we find this very pea to yield commonly the beſt crop of all others ſown in the random way; and for this reaſon it is ſown in the weſtern part of *Hertfordſhire* more common than any other pea whatſoever, as being after many trials found to be the beſt common hog-pea for this country. But there is a rouncival ſort of the ſame nature, that requires much the ſame culture.

CHAP. III.

OF THE TIME OF SOWING.

IN this chapter, I ſhall ſhew the ſkill of ſome farmers, as it relates to their ſowing of hog-peaſe in *January*; which, to do, I am to obſerve, that the peaſe, ſowed in this month, ſhould be the moſt hardy ſort of all others, and the ſoil a very dry one, becauſe the ſevere froſts, that generally happen now and hereafter, would kill a tender pea ſowed in wettiſh or cold earth. But when the hardy horn-grey hog pea is ſown in a chalky ſoil in *January*, notwithſtanding the cold and wet weather that may follow, and cauſe their heads to look reddiſh and pine, yet this good property attends them in ſuch a earth, that they will recover again as ſoon as the weather becomes calmer and warmer. Therefore in ſuch a chalky ſoil, whether the preceding crop was wheat, or barley, it matters not; the farmer here ſows his peaſe either broad-caſt, to the quantity of three or four buſhels on an acre, and ploughs them in, with the foot or wheel-plough, which way ſaves the charge of a ſower: or elſe a man ſprains the peaſe in out of his hand, in a thorough or furrow made by the plough, and then the plough turns the next thorough, or furrow of earth upon them, and ſo on, throughout the field.

Many

Many crops of peaſe have been loſt, by ſowing their ſeed too early in wettiſh, or clayey loams; for, in this caſe, the ſoil and ſeed ought to be duly conſidered in their nature. If a puffin-pea, a *Hampſhire* kid-pea, a kidwel-pea, a maple-pea, or a blue-pea, ſhould be ſown in a field, in theſe ſoils, in *January*, or the beginning of this month, it would greatly endanger their crop, by chilling and killing them in their infant growth, if much froſty and wettiſh weather happens in that time, when a horn-grey, *Windſor*, iron-grey, and ſome others would ſtand and eſcape the danger.

This moſt hardy pea is often experienced to grow and thrive in chalky, gravelly, and other dry land, and alſo in clays and ſtiff loams, if ſown early enough in them; and, as it is, for theſe reaſons, the moſt general pea, of all others, for ſuiting moſt ſorts of ſoils, and bearing to be ſown the earlieſt of any pea of the hog-kind, it is preferred, for ſowing in vale, and moſt *Chiltern* grounds, to all others. It is this excellent pea, that will grow in mixtures with thetches, or with oats; but beſt of all, with the horſe-bean, ſown with it, in the month of *December*, *January*, or *February*, and is annually found to produce, in this manner, very great crops. And, although the beans afterwards cannot well be ſeparated from the peaſe, they are little or nothing the worſe

for fatting ſwine, or feeding horſes; at leaſt, we *Hertfordſhire* farmers make no objection againſt the mixture, for, the ſpecies being inſeparable, it is often known, by woeful experience, that peaſe are ſubject to be killed by cold, wets, hail, &c. even till *June:* but, of all peaſe, none will ſtand the ſeverity of weather like this, for this has been found to go, and come again, ſeveral times: that is, although it ſeems almoſt killed by froſts, and chills of wets, yet, if any pea will recover it, this will, and often does, when others die.

Of all the tribe of peaſe, this, the *Windſor* grey-hog-pea, and the iron-grey pea are the firmeſt and hardeſt; inſomuch that is a rule with the judicious farmers, to give the horn-grey, or *Windſor*-grey, or iron-grey peaſe, as the firſt ſort, to the ſwine, that are to be fatted with peaſe; and the maple-pea, blue-pea, or the white or other ſofter peaſe, after they have ſufficed their keen appetites, and got ſome fat on them; for, if they were to be fed with the maple, blue, or white pea firſt, they would ſuffer in their fleſh very much, before they would eat them. The horn-grey pea is bigger than the *Windſor*-grey pea, or the *Eſſex Roading* pea, and ſerves the farmer as the beſt ſort of peaſe for manger-meat, when they are dry enough to give them with ſafety; and, when they are otherwiſe, it is our common

common practice to carry a parcel of them to the malt-kiln to be dried and ſplit, and then with a mixture of oats and chaff, they become excellent corn provender, and maintain our cattle well under the hardeſt labour. And ſuch ſtreſs is laid on this horſe-food, that there are few farmers, in our *Chiltern* country, but what prefer theſe peaſe to beans, and all other corn, becauſe the pea feeds and fattens, and yet does not heat the blood of the beaſt, like the bean, which, by ſome, is, on this account, refuſed as a manger-meat, as tending to the breed of farcies, &c. eſpecially in coach-horſes, that are obliged to run and heat themſelves more than cart-horſes. Some, therefore, will ſell their oat-crop, and keep the horn *Windſor*, or iron-grey pea, to ſupply their place in the manger, becauſe peaſe will go further than oats, in feeding horſes.

In the pariſh of *Ivinghoe*, in *Buckinghamſhire*, a great deal of their land conſiſts of a ſtiffiſh chalk, of a nature between a dry hurlucky, or what we call a ſhort ſugar-plum chalk, and a white clay. In this ſoil, a quaker farmer was ploughing and ſowing the horn-grey hog-pea, in *Chriſtmas* holidays, becauſe this horn-grey pea is of a pretty large ſize, but not ſo large as to deſerve the name of a rouncival pea, and is, paſt contradiction, the hardieſt pea of all others whatſoever; for this pea will ſtand the ſeverity of the

froſty weather, when all others are deſtroyed by its violence, having this particular beneficial quality belonging to it: that though through the vehemency of the cold, chill air, the infant heads and ſtalks of this pea are ſo pinched by it, as to turn even almoſt as red as a fox's tail, yet, on a ſucceſſion of mild weather, they will recover their priſtine verdure, and flouriſh again; and this they will do ſeveral times, as froſts and mild weather alternately happen; a character I can give no other pea, with ſuch a certainty, as I can of this. Yet as hardy as this pea is, when it is ſown in clays, or ſtiff loamy ground, it has ſuffered by long froſts, and chilly wets, which have overpowered its hardy quality.

In very dry ſummers, eſpecially in bloſſoming ſeaſon, when pea-crops in ſuch ſoils and weather are not able to perfect their bloſſoms for want of moiſture, and then the crop is, in part, or fully loſt. A caſe that often happens in chalky ſoils, not above three miles diſtance from my houſe, as I have heretofore obſerved, where ſeveral of their farmers are weary of ſowing peaſe, at any time in this earth, becauſe of this damage that makes them ſuffer more or leſs in very dry ſummers; and, therefore, in deſpair of better ſucceſs, they have ſown oats, where peaſe, by the courſe of ſowing, ſhould have been the crop; ſo powerful are the effects of very dry weather on pea-

crops

crops ſown in theſe ſoils, that, though the hardy horn-grey pea is ſown in them quickly after *Chriſtmas*, in order for their obtaining an early ſufficient cover to ſhade their roots, yet even ſuch early ſowing is not, in ſuch dry hot ſummers, capable of preventing this misfortune; much leſs when pea-ſeed is ſown later than ordinary in ſuch looſe dry earths.

CHAP. IV.

OF THE QUANTITY OF SEED.

THREE buſhels ſow an acre of peaſe in the random way, and a buſhel and a half in the drilling way, or leſs, if they are ſet with a ſtick in rows; but the ſetting of peaſe in fields is now in a manner left off every where, ſince the drilling of them is found to be a much cheaper, quicker, and far better way.

There muſt be four, or, better, five buſhels of horn-grey ſeed ſown out of a man's hand in all the thoroughs that a plough makes in one acre; for here he is obliged to ſow the peaſe ſo thick, that they may come up thick and cloſe: this prevents both froſts and droughts entering the ground to hurt their root; and, the older they grow, their ſtalks will the better anſwer this beneficial purpoſe, and ſecure them betimes

againſt the ſharp winds of *March*, which are very apt to dry and blow away this looſe earth from the roots of all corn that grows therein, and leave many of them ſo bare, as to kill them.

When we ſow horn-grey peaſe alone, in the broad-caſt method, in broad-lands, we commonly ſow in a poor ſoil four buſhels and a half, or five buſhels on an acre; becauſe, in this quantity, we allow ſome for loſs by birds, mice, ſlugs, and other deſtructive incidents: but when a man ſows theſe peaſe by ſpraining them in, out of a man's hand, after the plough, leſs than four buſhels are ſufficient: three, or three and a half, are the common allowance in this way of ſowing; for this ſpraining mode ſaves ſeed, whether it is done in ridges, or broad-lands.

CHAP. V.

OF HARVESTING PEASE.

IN 1740, the field hog-peaſe ran ſo faſt into pods, that the bloom was hardly perceived; and, when it does ſo, we ſay the pea ſteals a bloom, and then we reckon it a ſure ſign of a plentiful crop, which accordingly happened, for they corned extraordinary well in moſt places. We had the puffin, *Windſor*, and horn grey-pea, poplar, and maple hog-peaſe ripe,

ripe, which are cut ſeveral ways. In *Hertfordſhire* we do it two ways; one is by the pea-hook, which has a five feet long wooden handle, with a cutting-iron made a little circular at its end, about a foot in length, and an inch and a half broad. The other is by the ſcythe. If the peaſe are very thick and long, we hook them; if thin, we mow them. When they are ſown in two bout-lands, we commonly hook them and not mow them, becauſe it is difficult to mow them, while they are in this poſture. In *Kent* they make uſe of two inſtruments in this work, called hook and hinks, or hook and ſwipe, which their men dexterouſly manage; and, when all is cut down and dried, they make bands of the ſame, and bind the peaſe up in bundles for carrying home.

In caſe great rains fall after cutting, the wads muſt be turned now and then, and thereby you will prevent the opening of the pods and ſhedding of the peaſe in a great meaſure; and this is ſo well obſerved by careful farmers, that even in wet time, and when the rains continue long, they will turn them, becauſe it will keep the very undermoſt peaſe from opening.

It is the opinion of a certain farmer, that when peas have been ſo wetted in the field as to ſprout, if they be dried afterwards by fine weather,

ther, they are the ſweeter, and that he has obſerved his hogs eat them better, and thrive faſter, than when they have eaten them very dry and hard. But then ſuch peaſe muſt not be inned too damp; if they are, they will mow-burn, or turn mouldy, rotten, and ſtink.

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BOOK VIII.

Of the CULTURE *of* BEANS.

CHAPTER I.

OF PLOUGHING FOR BEANS.

THE vale ancient and common way of getting a crop of horſe-beans, is to plough the ground but once for this purpoſe; and that is generally done in *February*, after a wheat or barley crop had laſt grown, when they ſow the ſame land with bean-ſeed twice in a place, broad-caſt, to the quantity of two buſhels on each half acre ridge-land, and they then immediately, with the foot-plough, plough in the ſeed, by caſting down the earth; for it is very rare, that any plough their ground at this time by ridging it up in theſe parts. When the ſowing and ploughing part is finiſhed, they draw the harrows over all the land; but ſome neglect harrowing, till the beans are ready to peep out of the earth, the

better

better to give them an eaſy paſſage. And thus, in a favourable ſummer, they enjoy the beſt of horſe-bean crops; for no land exceeds this vale ſort of ſtiff black earth, for profitable bean-crops; which is the chiefeſt ſoil of the vale of *Ayleſbury*.

The method of ſowing beans is ſo material an article, that I thought it abſolutely neceſſary to be particular in my remarks on it, becauſe on it depends very much the good or bad ſucceſs of the crop. On this account it is, that ſome of the brighteſt farmers that I know, who rent ſeveral incloſed farms in the *Chiltern* country, whoſe land conſiſts of gravelly loams, chalky loams, and intire dryiſh loams, believe, that all ſuch dryiſh ſoils require to be ſown with a larger quantity of ſeed, than either a clayey ſoil or a wettiſh loam: becauſe, as the horſe-bean affects a ſtiff moiſt earth, wherein it may lie wrapped up in a cloſe coverture of the ſame, the leſs will ſerve an acre, for here the bean receives a nouriſhment on all the ſides of it in a conſtant ſupply; for, let the weather come how it will after the ſeed has been thoroughly ſoaked by rains, ſuch ſtiff earth will communicate ſome degree of moiſture for carrying forward the after-growth of the bean-crop, while, in a poor, dryiſh, looſe ſoil, the ſeed-beans lie in a hollow looſe condi-

tion or coverture, and are thereby ſubject to ſuffer by droughts of little duration. Hence it is commonly ſaid, that ſome dry earths can eaſily diſpenſe every ſummer's-day with a ſhower of rain. What then muſt be the effect of long droughts to bean-crops, where the ſeed was ſown thin? Why, a ſhort dwindling ſtalk, a few bloſſoms, fewer beans, and a great many weeds. Now, to prevent theſe fatal misfortunes, the farmers, I have before mentioned, ſow five buſhels of horſe-bean ſeed always on each acre of their land, either broad-caſt and plough them in, or a ſeeds-man follows the narrow two-wheel plough, and ſtrains or ſprains in the beans; that is, by toſſing or throwing the ſeed in a direct line out of his hand all along the furrow the plough makes and leaves, which is covered by turning down the earth of the next furrow, and ſo on till all the field is ſowed; and none have better crops in the *Chiltern* country than theſe farmers. The benefit then of this management is this, that, as the beans are ſown thus very thick in a dry looſe earth, their ſtalks will grow up ſo cloſe together as to ſhade each others roots, and, by this means, get a good cover in a little time, againſt the parching heats of ſummer-weather, and thereby the moiſture of rains and dews will be retained a long time after falling,

to the great advantage of ſuch crops; as has been often proved in dryiſh ſummers, in the aforeſaid dryiſh earths, of loamy gravels, loamy chalks, loamy ſands, and in intire loams of the *Chiltern* country; which alſo keeps their ground clear of weeds, in a hollow condition, and from being exhauſted, in a great meaſure, of its fertile quality, by the attraction of the powerful ſun-beams, which in earths, where the ſeeds of corn are ſown too thin, is often the caſe, eſpecially in dry hot ſummers.

A fourth way to improve a crop of horſe-beans in the *Chiltern* country, as I have ſeen it performed between *Watford* and *Hempſtead*, is: they ſet them in a gravelly, loamy, incloſed field, that was ploughed hollow, by the ſhort dibber, made with the upper-part of the handle of a ſhovel or ſpade, cut off within five or ſix inches of the hollow handle into a ſmall round point, which is ſhod with iron about three inches in length; this women job into the ground, and then immediately drop into the hole a horſe-bean, and ſo they proceed in a very quick manner, making the holes by a line, perhaps, fifteen or twenty yards long; and, when one row is finiſhed, the line is moved at a foot or eighteen inches diſtance, and ſo they go on throughout a field, till the whole is compleated. Thus the

women

women work for nine pence, ſetting every peck of horſe-bean ſeed, which they carry in an apron before them, and with great agility take out and ſet by this dibber; the latter in the right hand and the other in the left, at three inches aſunder each hole. Afterwards they harrow all the ground, and, when the beans have got a few inches above the earth, they hand-hoe them.

About *Swanburne* in *Bucks*, their ground is ſo heavy a clay, that they commonly let it lie three or four days after ploughing, or more, before they ſow in order for the weather to ſlacken and ſhorten the ſurface, and then they are obliged to ſow their horſe-bean ſeed, broad-caſt, and harrow it in; for, if they plough it in, they ſay they ſhall have no beans, contrary to moſt other parts of the ſame vale, where their land is of a blackiſh, ſtiff loam; and, therefore, they are forced here, to plough in their bean-ſeed, to have a great crop, for a ſmall froſt preſently ſhoals and crumbles this ſtiff, fat, black earth; yet many of the bean-heads, in this ſoil, will get doubled, in making their way out of it; and therefore they forbear uſing their harrows for ſeveral weeks after ſowing the beans, becauſe then they relieve theſe doubled heads, by the ſcratching of the tines, which looſens the earth, and lets them eaſily out.

This ſort of ground, as it generally lies flat, low, and wettiſh, they plough but once for ſow-

ing it, either with peaſe or beans in the ſpring time. And why they do ſo is, becauſe, if they winter-plough for theſe, they commonly ſuffer, by the loſs of great part of their expected good crops; by reaſon if they break up their heavy ground in any part of the winter, it is the more expoſed to the ſlug and waſh of rains, and to the loſs of its ſpirits or ſtrength. Whereas, when their ridge-acre, half-acre, or rood-lands, lie all the winter undiſturbed till *February* or *March* in whole ground; then their earth will plough up in a freſh, lively, dryiſh condition, and revive and nouriſh the pea, or horſe-bean ſeed in ſuch a manner, as to carry the crop forward in a vigorous growth: and eſpecially, if they enjoy a right ſeaſon at ſowing-time. This item, againſt ploughing up ground in a wrong ſeaſon, is not only neceſſary to be obſerved by vale-farmers, but alſo by all others; for a man may beggar his lands by many ways of ill-managing it; and, in particular, by this of ploughing it too often, or too ſoon; which further ſhews, how much the art of farming depends on the conduct of the maſter, or his ploughman. But ſome may think, that, by giving theſe vale-lands only one ploughing or ſowing-time, the earth will be too rough and clotty for the ſeed-beans. On the contrary, the vale-farmers like it beſt, when it is ſo; for then they know a heavy thorough, or furrow, will

will be turned on the horſe-beans, lie cloſe and moiſt on them, and ſhelter their roots afterwards from the violence of froſts and droughts; and their heads, or firſt ſprouts, will eaſily make their way through their thick ſurface; becauſe, as theſe vale-earths generally partake of a marly nature, their upper part is preſently ſhattered by a ſmall froſt into a crumbling looſe condition.

CHAP. II.

OF THE SOIL FOR BEANS.

LAND cannot well be too rich for a bean-crop, becauſe the large high ſtalks, and great numbers of beans growing on them, employ ſo much of the goodneſs of the earth in their nouriſhment, as makes it neceſſary beans ſhould be ſown in a rich and not poor ground; inſomuch that, if the ground is not in good heart, on which beans are ſown or ſet, there is little likelihood of their being a good crop; for, if a rich ſoil, in a dry ſummer, returns but a poor crop of beans, what can be expected from a poor ſoil? Therefore, all vale and *Chiltern* clays, and ſtiff loams, are certainly the moſt proper ſorts for beans; and, as ſtiff earths are generally the rankeſt or richeſt ſort of land, I have ſeen in ſuch ground, in the vale of *Ayles-*

bury, many crops of beans, that have been equal in value to the like quantity of ground ſown with wheat or barley, ſeventy, eighty, or more pods of horſe-beans growing upon one ſingle ſtalk; and then it is, the vale-farmer obtains ſuch a bulky crop, as obliges him to make his huge ridge-ſtacks, or cocks of beans abroad. Then, if he be a rich man, and able to bear ſtock; or, if he is poor, and his landlord rich, and willing to truſt him with two or three years rent, ſuch a tenant ſtands a rare chance of ſelling his old beans to a great advantage; for it is generally obſerved, that horſe-beans very rarely hit three ſummers together.

A poor dryiſh land may be made capable of producing large bean-crops; which is an article that more than ordinary deſerves attention, becauſe it is of great importance to the lands of owners of ſome ſorts of dryiſh land, which they think cannot bear a bean-crop, by reaſon of ſuch its dryiſh nature; which the generality of people allow to be a quality repugnant to the profitable growth of a horſe-bean. Yet, for all this, thouſands of acres of land may be ſown, or ſet, with horſe-beans, to advantage, that never were. A ſandy ſoil may bear a plentiful crop of beans: but, when I mention ſand, I would be underſtood to mean ſuch a red, white, or yellow lean, dry ſand, as many places afford; no,

no, it is a blackiſh, rich, dry ſand, or a ſpringy or other wettiſh ſand, no matter of what colour, that I mean here, which is capable of being improved by a bean-crop.

Land, fit for wheat, is commonly fit for horſe-beans, and here they are often ſown on purpoſe for a change of ſeed to the ground, as well as for profit otherwiſe.

CHAP. III.

OF THE SORTS OF BEANS.

TICK-BEANS may be juſtly named *the large horſe-beans*, becauſe they are chiefly ſown or ſet for the uſe of horſes, as well as the ſmall field horſe-bean; and this more of late than ever; for that theſe, being near as large as the ſmall garden hotſpur bean, they turn to the beſt account for ſplitting in a mill, to give with chaff or bran, or oats, as manger-meat to horſes; and alſo for their great bearing quality, which in rich ground, in a kind ſeaſon, and under good management, generally produce vaſt crops. Both the tick horſe-beans, and the common ſmall horſe-beans, are ſet alike in ſome parts, but in a different manner in others.

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CHAP. IV.

OF SETTING BEANS.

ABOUT *Harrow*, *Hoxton*, *Acton*, *&c.* in *Middleſex*, in ſeveral of their ſtiff loamy fields, they, with their large ſwing-plough, plow three four-bout-lands into two, and harrow them almoſt plain; then, by lines laid over four or five of theſe broadiſh lands a-croſs, women ſet horſe-beans in holes, which they make along each line at two inches aſunder; and ſo proceed till the whole field is finiſhed, and then they harrow it all over once in a place. On the 9th day of *February* 1742, as I rode along, I ſaw great numbers of women at this work in theſe parts. When the horſe-beans are at a proper height, they hoe them with hand-hoes once, and ſometimes twice; but there is another way made uſe of here by ſome of their farmers, where their ground is more a clay; and that is by ploughing up their wheat-ſtubble four-bout lands about *Chriſtmas*, and letting them lie till this month, when they ſow their horſe-beans, broad-caſt, and harrow them in; for, if they ſhould ſow firſt, and then plough them in, they would be ſo buried, as never to become a tolerable crop. And ſo they do ſometimes in three-bout lands, where the ground lies wet;

and when they have ſown their horſe-beans, broad-caſt, over theſe narrow lands, they ſtrike up their thoroughs with their ſwing-plough, and afterwards pull up their curlock-weed by the hand, but chop up the couch-graſs.

About *Gainsford* and *Rouſlup* in *Middleſex*, their land lies ſo low, that they are obliged to keep it up in high ridges, to preſerve the corn dry, and prevent the damage of waters. On this account it is, that they ſet their horſe-beans by the hollow-handle dibble, and by a line laid a-croſs the ridge-land, and ſo another croſs row, at about a foot diſtance, thus leaving room for men to hand-hoe afterwards between the rows; and, when the whole field is about four inches high, men begin to hoe long-ways between the rows of the ridge-land; and about five weeks after, they hoe a ſecond time; and, at this laſt hoeing, they pull the earth upon the roots of the beans; which operation not only kills the new-ſprouted weeds, but ſupports the ſtalks, keeps them ſhaded at the bottom from the droughts, and adds a new fertility to their growth. Two buſhels of horſe-bean-ſeed ſet one acre in this manner.

Sometimes they raiſe a good depth of mould by the plough, on a ſhallow ſurface, for the better ſetting and growing of a crop of horſe-beans, which is performed in land of a ſtiffiſh,

wettiſh nature, ſituated near *Weſt-Hyde*, in *Rickmanſworth* pariſh, that is not ſo ſtiff, nor lies ſo wet, but that they plough and ſow in broad-lands, on a wheat-ſtubble, particularly for a bean-crop, when they plough and ſow it after the following manner: They get ready two teams, one draws a ſwing-plough, with three horſes in length; the other draws a ſwing-plough, with five or ſix horſes in length; and this on purpoſe to make a ſhallow ſoil a deep one: For the firſt three-horſe team turns up a ſhallow earth; the other team follows immediately after, and turns a deeper earth on that. When this is done throughout the field, they give it one harrowing, and then begin to ſet their horſe-beans by line.

CHAP. V.

OF HOEING BEANS.

THE benefit of hoeing was more apparently ſeen this year than in many others; becauſe the long, cold, dry ſpring, and dry ſummer, 1740, cauſed the bloſſoms to dry and fall off for want of ſufficient moiſture, and even killed many a bean-ſtalk after it had got pods on. About *Pinner*, near *Harrow*, in *Middleſex*, they were more than ordinarily ſenſible of this.

Thoſe

Thoſe horſe-beans that were drilled and hoed, were good crops in general; but thoſe that were ploughed in, or harrowed in, were for the moſt part as bad. Here they ſowed their horſe-beans in drills, at two feet aſunder, which was hoed twice in all, for four ſhillings an acre; and one man in this work would hoe over an acre in one day, for which he had two ſhillings; and the ſame when he hoed them a ſecond time: However, by one fault is known how to prevent another; and they are now reſolved to ſow all their beans in drills for the future.

CHAP. VI.

OF TOPPING BEANS.

AS ſoon as ever the bloſſom falls off from the bottom of the broad bean ſtalk; that is, as ſoon as the lowermoſt kid appears, then cut or pinch off juſt the head of the ſtalk, for then as the ſtalk kids upwards, this method will ſtop its ſhooting in length, make it corn better, and leſs liable to the dolphin-fly; but this work is rather too tedious to be done among horſe-beans.

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CHAP. VII.

OF ROLLING BEAN-GROUND.

IN the *Chiltern* country we commonly roll thoſe beans that are to be mowed; ſome as ſoon as they are ploughed in, others as ſoon as their heads are all out of the earth, to cloſe the ground about them, and better ſecure them from the damage of droughts, and make it lie even, that the ſcythe may work the better. Some harrow them preſently after their appearance, ſaying it looſens the earth, lets in rains, prevents the growth of weeds, and, if the tines ſplit any of their heads, they will ſpread and grow into the more ſtalks.

CHAP. VIII.

OF THE FLY, &c.

THESE inſects always begin to make their lodgment on the top of this vegetable, and increaſe downwards till they kill all or moſt of the growing beans; therefore, when they have firſt got poſſeſſion, mow off the heads of the beans with a ſcythe, and the fly will never riſe again, for they cannot get upwards. The next

next way is to do it by turkeys: A certain farmer's wife uſed to ſcold at her ſervants for letting the turkies go into a field of beans near her houſe; but inſtead of miſchief, they did great ſervice; for they proved excellent weeders, by picking off the flies for their food, and cauſed more beans to grow on four acres, than was in forty of her neighbour's that ſummer.

A field had been a meadow time out of mind, in the pariſh of *Studham* in *Hertfordſhire*; but, the graſs decaying on it, the owner, to recruit it, dunged it well all over, on which enſued ſuch a dry ſummer as burnt up the crop. The next year he ſowed *London* coal-aſhes over it, and had a tolerable return; however, having ſeldom or never had a full crop of graſs on this meadow-ground, he reſolved, as ſoon as a compoſition was made with the tytheman of the pariſh (which was then about to be done) to plow it for ſowing corn; accordingly the tythe was agreed to be paid in money, and then he up with this meadow, and ſowed it with beans, which were ſo deſtroyed by the grub and canker-worm, that at harveſt there were hardly any beans; for theſe inſects, having had a long ſeries of years to increaſe their breed undiſturbed, multiplied prodigiouſly. After this he was going to ſow it with wheat only on one plowing,

but

but was diſſuaded from it, and inſtead thereof ploughed it up and harrowed it ſeveral times, till he got it fine enough to ſow it with turneps, which he did; and, after they were eaten off, he gave the ſame ground one plowing, and harrowed in barley, and after that wheat, and had excellent crops, free from any damage by the canker-worm; which by this time were moſt, or all, deſtroyed by the plough-ſhare, hoe, and the tines of harrows.

CHAP. IX.

OF THE PRODUCT OF BEANS.

IN a gravelly loam in the *Chiltern*, a wet ſummer has produced 260 pods on ſix ſtalks, that grew from one root; and upon one ſingle ſtalk ninety pods have been found: And from one acre forty buſhels of horſe-beans have been got, which makes ſome of opinion, that a full crop of theſe will pay a farmer as well as a crop of wheat, eſpecially where they dung for beans, and immediately after ſow wheat on the ſame without dreſſing, as many do in ſome *Chiltern* countries, to their great improvement. My neighbour having a field of three acres to ſow, whoſe ſoil was a flat loamy

loamy earth, he ſowed five buſhels of beans amongſt peaſe and thetches in a very dry ſeaſon. The peaſe and the thetches miſſed, but the beans that grew very thin ſtood it, and became ſo well corned, that he had an hundred buſhels of thraſhed horſe-beans off theſe three acres. Another *Chiltern* farmer had five quarters of beans and peaſe that grew together off one acre, which is a good Vale-crop.

CHAP. X.

OF HARVESTING BEANS.

IN the vale of *Aylesbury*, where the beſt of bean-ground is, they mow all their beans with the bare ſcythe, in *ſwarth*, as they call it; that is, they mow their beans towards the beans, and each mower has a boy to follow him with a fork to lay them in wads, in which poſture they let them lie to wilk and wither. Next, they lay two of theſe wads in one along the ridges of their land, and directly draft, rake, and leaſe all with their own folks, I mean thoſe of their own family. When dried, they carry, draft, rake, and leaſe all their bean land over again. But, in the dry ſummer 1740, they mowed their beans out in ſwarth, becauſe they were

were ſo ſhort and thin, that they might eaſily do it, this way; for, when they mow beans in ſwarth, it is, becauſe they are a large crop, and ſtand leaning inwards, which they are obliged to obſerve; elſe when they mow beans againſt their bending, they call it *Throating*, that is, moving them againſt their bending.

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BOOK IX.

Of the CULTURE *of* TARES.

CHAPTER I.

THE SORT OF TARE.

THETCHES are of ſeveral ſorts, as the great horſe-thetch, and the ſmaller ſort, which by ſome are called the winter-thetch; theſe are very profitable if ſown in a right ſoil, and at a right time: the horſe-thetch was ſown by a great farmer at *Penly*, in *February*, and only harrowed in upon his fallow ground on one ploughing, for his horſes, cows, or ſheep to feed on the following ſummer, either in the rack or field, and the remainder to plough in, a fortnight or month before they ſow their wheat; on this they harrow their wheat, and dreſs it with ſhort dung, or fold on the top. The ſmalleſt Weſt-Country winter-thetch is ſown in *September*, for food for the ſheep, &c. in the winter and ſpring: they firſt ſow them broad-caſt all over a piece

piece of chalk, gravel, ſand, or loam (for wet ground is not proper for them) and then plough them in under-thorough, where they will make their way through the ground, as being a moſt hardy grain, according to the compariſon of an old ſaying—*A thetch will go through, the bottom of an old ſhoe.*—And therefore many ſow them among peaſe, becauſe if they miſs, the thetch generally hits: their dry haulm is but coarſe fodder for horſe or cow, but the corn is good for pigeons, and to give ſtore-hogs: three buſhels ſow an acre, and often return twenty.

Lentils, are the ſmalleſt ſort of pulſe that are ſown, and leſſer than the thetch, as that is the pea, and the pea the bean: they are ſown on the poor chalks, ſands, and gravels, where neither the thetch nor pea will thrive; there this will flouriſh and produce great quantities on its upright ſtalks, that grow about a foot and a half high; are ſowed alone, or with oats, and make the beſt of provender, given in the rack as it comes out of the field, which the cows and bullocks will greedily eat, and fatten very faſt under its keeping; ſwine are alſo great lovers of the lentils, and will pick up what falls on the ground, and be much forwarded in their fleſh; pigeons are great lovers of them, as being very natural to their bodies. In many places they ſow theſe for their horſes and cows inſtead of hay,

and commonly put chaff into their mangers, for the lentils to fall amongſt; as the horſes and cows pull the haulm out of the racks, that ſupplies the want of hay and oats: one buſhel ſows an acre; and generally returns fifteen. They are often ſold for three ſhillings a buſhel.

March is a very proper time to ſow lentils in, either alone or among corn; they very much affect to grow in dry ſoils, and therefore are commonly ſown among oats; half a buſhel of lentils, in this mixture, is ſufficientto ſow one acre of ground: if ſowed alone, a buſhel and a half is but ſufficient to ſow over one acre; and, if a favourable ſummer follows, there may happen to be fifteen buſhels of lentils got off the ſame. If they are ſown with oats, they are eaſily parted from them in the barn; becauſe, on throwing the oats and lentils together, the lentils, being the heavier corn, will fly further than the oats, and ſo may be ſeparated; they are eaſily mown, as they hang and twine together; and what is very profitable to this grain, they will grow well in poor dry ſoils. It was theſe lentils in ſome places that ſtood the poor's friend in the hard winter and ſpring-time of 1739-40, when many had lentils ground down into flour, and mixed with oatmeal for making bread, when wheat was ſold at ſeven ſhillings a buſhel in

Hempſtead

Hempſtead great market. Near *Brackley*, about twenty years ago, ſome farmers uſed to ſow lentils in a whitiſh ſoil among barley, which, being ground together, made a bread in dear times of wheat for the poorer ſort of people. Some are of opinion they beggar land when ſown alone, becauſe they ſeldom afford a full cover to it.

Winter tares, in *Hertfordſhire*, are called *Thetches*; in *Middleſex*, *Tares*; in ſome other parts *Vetches*. One author gives vetches four ſeveral names or diſtinctions, as the *Gore-Vetch*, *Pebble-Vetch*, *Winter-Vetch*, *Rathripe-Vetch*; of all which I ſhall only here take notice of the winter-thetch or vetch. This is not the largeſt but the hardieſt thetch of all others, therefore moſt proper for what I am going to recommend it; and that is, for ſowing it about *Michaelmas*-time as a moſt valuable piece of huſbandry, becauſe, by ſo doing, theſe thetches will come in for feeding horſes, cows, and ſheep in the ſpring-ſeaſon, after turneps are gone; and this is one great benefit belonging to incloſures, for here we can ſow and time a crop of grain, thetches, or graſs at our pleaſure, when the common open field denies us.

A farmer who occupied about two hundred acres of land in *Studham* pariſh, *Hertfordſhire*, being very deſirous to enjoy the benefit of this

ſort

ſort of thetches, was as the charge of ſending for the ſeed as far as *Wickham*, in *Buckingham-ſhire*; and, having got the right winter large ſort, he plowed up a wheat-ſtubble incloſed field, that lay in two bout-lands, into broad-lands, and harrowed in two buſhels of them on an acre about *Michaelmas*-time. Theſe grew into a moſt fine crop by the help of a mild winter, ſo that he baited his ſtore-weather-ſheep on them for a conſiderable time, from the month of *May* forward, thus: In the morning his ſhep-herd drove them from the fold to the common, where they remained till about two a clock in the afternoon; then he brought them into the thetch-field, for filling the bellies againſt folding-time, and they would carry ſuch a quantity of this pleaſant wholeſome juicy food away, as cauſed them to dung and ſtale prodigiouſly; ſo that the land was almoſt double dreſſed, in compariſon of that meat got only from off com-mons.

The next year this farmer ſowed the ſame ſort of thetches again upon one of his ſtubble-grounds, but miſſed of that ſucceſs he the year before enjoyed; for it happened that a moſt ſevere froſty winter followed, that periſhed his whole crop, for at the ſpring they looked red-diſh, as if they had been ſinged, which made this farmer plow up the ſame ground and ſow

it with peaſe; which ſo diſcouraged him, that he never would venture to ſow any more winter-thetches, but betook himſelf to the ſowing of clover and trefoil for his ſheep, under pretence of their being a more ſure crop However, this is not the caſe of many others, for now theſe winter thetches get more and more into uſe, for their forward and great ſervice, and that for almoſt all ſorts of farmers cattle. And, though I have wrote that this farmer ſowed them on only plowed up ſtubble, yet many make a fallow on purpoſe for them, that their ground may be got fine and hollow enough, to cauſe a ſurer and ſwifter growth of them.

The winter-thetch is very valuable to ſow at *Michaelmas*, not only for horſes, cows, and ſheep, but alſo for obtaining a very forward crop of them for ſeed; for, by ſowing thetches ſo early, they will be ready to mow early, and be got into the barn in the drieſt and hotteſt ſeaſon, and thereby give the farmer an opportunity to ſow the ſame ground with turneps, or *French* wheat, cole-ſeed, or indeed common wheat; for hardly any vegetable prepares the ground better for the reception of ſeed than the thetch, and this it will do to admiration, inſomuch that many farmers think a full crop of thetches will ſo kill weeds, and enrich and hollow the earth by

by their great cover, as to equal ſeveral plowings.

The gore-thetch is preferred by many for a crop to feed horſes with in particular, while they are in their green condition; for theſe ſort run into a large and very long ſtalk and kid, beyond all others, and are therefore fitter for feeding great cattle than the ſmaller ſort of thetch; but, as theſe are more tender than the winter-thetch, they are ſeldom ſown till *February*, *March*, and *April*, and then they rarely miſs of a plentiful return, if the ground was tolerable fine and in good heart; for a thetch is a very hardy vegetable, and of great uſe to a farmer, becauſe they will not only ſupply his horſes, cows, ſheep, and hogs, with meat in the field, but alſo in the ſtable, cow-houſe, and ſtye, if they are daily mown and given them. It is the practice of a great farmer, near me, to mow his thetches as ſoon as they are grown into a good head, or in bloſſom, and till they are in kid, but not when too old, and gives them to his hogs; for ſome ſort of ſwine will eat them greedily, if they are cut and given them every day freſh, and ſo thrive as to become pork, if they have no other food. I ſowed about two acres of a large field with thetches, for my horſes, and, though the reſt of the field

was plowed ſeveral times and dunged the ſame as this piece was, yet I had better wheat where the thetches grew than in any other part of the ſame field, though the ſame was not plowed ſo often as the reſt was, as it was proved in the year 1741. It was this ſort of thetches alſo that maintained my horſes alone, under the work of cart and plow in 1742, good part of the ſummer, and are of ſuch a fattening nature, that a horſe, in three weeks or a month's time, will get fat with them. This piece of huſbandry is alſo performed in many open fields, as it is this year 1742, among *Lent*-grain, in *Edgborough* common field, in *Bucks*, where, a farmer of my acquaintance having but one piece of ground in one part of the field, and another at a diſtance in the ſame, he runs hurdles along the outſide of the piece, and then baited his ſtore-ſheep on them for folding good part of the ſummer.

Thirdly, In the *Chiltern* country we ſow them in two bout-lands, by plowing them in; or, *Fourthly*, On broad-lands, and harrow them in. This is giving a practical account from the reſult of experience, which would have been impoſſible for me to have done, had I not travelled for a great deal of my knowledge; ſo that, however deficient I was formerly in my writings, I hope I am now able to give my readers that ſatis-

faction

faction as may tend to their profit in particular, and to my country's intereſt in general.

The large thetch, or vetch, as it runs into a large, long ſtalk and kid, covers more ground than the ſmall thetch; and, the more ground it covers, the greater benefit it receives. On this account, ſome farmers are of opinion, that a large thetch does the earth as much ſervice again, as a very ſmall thetch; becauſe its weight, cloſe lying, and large ſtalks very much enrich the ground, keeping the ſpirit or vapour of the earth in it, defending it from the damage of drought, and exhalations of the ſun, lodging quantities of dews, preventing the growth of weeds, and killing others that had before their roots remaining in the ground; which the ſmalleſt thetch is not ſo capable of doing, becauſe its weaker roots, leſſer and ſhorter ſtalk, and kid yield not that cover as the larger thetch. It is this larger thetch, that is called the winter-thetch; which therefore admits of its being ſown about *Michaelmas*, in order to acquire an early ſtrong root and head, to enable it to withſtand the ſeverity of the winter weather, and get into ſuch a growth in *March* or *April*, as qualifies it to become a ſpring-green graſs-food for ſheep, or ſheep and lambs, that, in this ſcarce time of green meat, may then enjoy plenty of it, and feed the thetches twice over; which will

greatly improve the land the thetches grow on, by the dung-ſtale, and oily wools of theſe beſt of quadrupedes.

Wild thetch is alſo an excellent natural graſs, whoſe long ſtalks in good land, and in fertile ſeaſons, are loaded with many little kids, that contain numbers of ſmall hearty ſeeds.

CHAP. II.

TARES ON A SAINFOINE LAY.

A Farmer that was owner of a chalky, loamy field, that had ſome time been under ſainfoine graſs, till it was in a manner worn out, took this courſe, to make the beſt of his ground, viz. he ploughed up his ſainfoine field with the ſtrong double-ſhare plough, by ſix horſes that went three double, by which he ploughed up very narrow thoroughs, or furrows, in this ſhort, ſoftiſh, chalky ſoil, that proved a great advantage to the ſowing of the ſame with corn; for, as we ſay, the more thoroughs, or furrows, the more corn; and this double plough makes more thoroughs in a field, than any of the ſingle ploughs can, and lays them much evener, and better for the reception of the ſeed, and nouriſhing it afterwards; and when all the field was thus ploughed into broad-lands, he harrowed three buſhels of thetches on each acre, and they throve ſo faſt,

by

by the freſhneſs of the new broken up graſs-lay, that he began to mow the green thetch-crop in *April*, for feeding his plough and waggon-horſes with it, out of a rack in the ſtable, and ſo continued mowing, and feeding, the thetches, till ſome time in *May*; when they were thus all mown off, he ploughed the ſame ground firſt into broad-lands, with the two wheel ſingle fallow plough, and when the land had lain in this poſture a little time, he harrowed it all thoroughly fine, and then directly hacked it acroſs the laſt way of ploughing, ſhattered the earth, and reduced it into a powdered, porous condition, fit for ſowing it with any ſuitable grain: and when the field was thus got ready, he went to *Watford* market, and bought a parcel of the white *Eſſex* roading-peaſe, at five ſhillings a buſhel, which being a ſmall ſort, a few of them went a great way, in ſowing this field; and the further, for ſowing them in drills, at three feet and a half diſtance; and at the ſame time he ſowed turnip-ſeed in the interſpaces between the drills of peaſe, which furniſhed the whole ground with ſeed, and then made one harrowing once in a place ſerve both. Afterwards, when the the turnips and peaſe were got big enough to hough, he made one trouble ſerve for all, and houghed both peaſe and turnips before he left off.

CHAP. III.

OF THE TIME OF SOWING.

IN *Hertfordſhire*, we call them thetches, that may be ſown for an early crop about *Michaelmas*, and then they are called winter thetches, becauſe of their early ſowing, and feeding ſheep and horſes in the ſpring-time, for which uſe, they are exceeding profitable, as coming at a ſeaſon, when all other green meat is very ſcarce: but the thetches ſown at that time of year are a hazardous undertaking, for I knew one of our top farmers ſow them about *Michaelmas*, and he ſucceeded to his wiſh, by having a very early crop of them. But, on a ſecond attempt, the following year, at the like time of ſowing them, he loſt the whole crop by it; for, though they made a fine appearance all the next winter, which was a mild one, yet, at *Candlemas*, they were killed by the ſeverity of froſty weather, ſo that he was diſcouraged from ever ſowing them afterwards at that time of year, and betook himſelf to a later and ſafer way, which was, to ſow them in *January*.

Firſt, if you ſow thetches in *October*, *November*, *December*, or ſafer, in *January*, in a *Chiltern* country, ſow three buſhels on an acre; for, when thetches are ſown in any of theſe winter months,

months, they ſhould not be ſown in leſs quantity, and then they will be but equal to two buſhels and a half, ſown in *March* or *April*: for, in theſe two ſpring months, the thetch is, in a manner, out of the power of violent froſts; and the more, as it is, in its own nature, a hardy, hot vegetable; yet not ſo hardy, as to be froſt-proof, when it is a very ſevere and long one, which ſeldom happens at that time of year. Now there is a winter large thetch, and a ſmall lenten thetch. The firſt ſort are ſold in common at *High-Wickham* market, in *Bucks*, and at other places. The laſt are much ſown about *Warminſter*, in *Wilts*, where they call them lenten thetches, being a ſmall, round ſort, ſown in *March* or *April*, and therefore called by that name, and generally return a very great crop.

If any perſon have a mind to ſow the large winter thetch, they ſhould do it in a gravel, ſand, chalk, or other dry, warm ſoil, and where ſuch land is ſcreened from the fury of north and eaſt winds, by a low ſituation, or by tall, thick hedges, or good; for, if a farmer ſhould be ſo indiſcreet to ſow the winter thetch in a clay, or other wet, cold ſoil; or, in a gravel chalk, or ſand, that lies full bleak, and expoſed to the power of a north, or eaſt wind, he has reaſon to fear the ill conſequence of loſing his crop of thetches by it.

Secondly,

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Secondly, Thetches may be ſown in divers manners and forms. In vale, clayey, or wettiſh grounds, they may be ſown, and then ploughed in, as they do their wheat-ſeed, on their ridge, rood, half-acre, or acre-lands: or all the thetch-ſeed may be harrowed in on the rough ground, as ſoon as the plough leaves it. And here the thetches, ſown in this month, will be of the greateſt ſervice for ſtaking the cart and plough-horſes, in *April* or *May*, in common fields, as is very uſually done by ſome of the conſiderate huſbandmen, who can foreſee the want of this delicate horſe-food, before they feel it.

The month of *February* gives the farmer a moſt valuable opportunity for ſowing thetches, in order to obtain an early and large crop of them, becauſe it is moſt likely, in this month, for the ſeed to have the benefit of rains, which admirably agrees with the thetch, for wet weather will not kill a thetch; but much dry weather is an enemy to its poſterity in its infant growth, before it is got head enough to ſhade its roots.

CHAP. IV.

OF THE QUANTITY OF SEED.

WHEN tares are ſown after wheat or barley on ridges, two buſhels and an half of the ſmaller or larger ſort will do; but if on broad land there ſhould be three buſhels of the large ſort ſown, and two and a half of the ſmall, and harrowed as ſoon as ſown.

CHAP. V.

OF THE APPLICATION OF THE CROP.

IN *May*, thoſe thetches, that appear ſpeckled or begin to bloſſom, may be daily mowed, and given in racks, as we do green clover, &c. to horſes in the ſtable, for ſoiling them; and, as they are of a very healthful nature, they cool their heels, keep their bodies open in hot weather, and ſuddenly fat them. Thus ſuch a crop has laſted three weeks cutting, before they are too ripe, and the ſap or goodneſs out of the ſtalk.

Thetches, fed or mowed green, are a great great improvement to the earth, for, *Firſt*, they employ the fallow ground. *Secondly*, the great cover

cover of the ſpreading thetches keeps in the ſpirit of the land, and thereby very much enriches it. *Thirdly*, The horſes dreſs it with their ſtale and dung. *Fourthly*, They kill weeds, and ſo hollow the ground, that, on one, two, or three ploughings, wheat may be ſown, as uſual, in *October* following.

Thetches are alſo good to mow and feed cows in racks; for, as they are a green food, they will breed abundance of milk, while the beaſts are freed under cover from the torment of flies, and the ſcorching heats of the ſun; and, to enjoy this great benefit the longeſt time, thetches ſhould be ſown in *January*, *February*, and *March*, or longer, that their alternate growths may ſeaſonably furniſh the farmer, both in vale and *Chiltern* lands, with a ſufficient quantity of green meat, when no other ſort is to be had; and this not only for horſes and cows, but alſo for ſheep, and eſpecially thoſe ewes that ſuckle houſe-lambs. Then, and in this manner, green thetches may be mown all *June*, *July*, and *Auguſt*, and be either given under cover, or fed in the field, to very great advantage.

But to further explain this, I am to obſerve, that, when thetches are big enough to feed ſtore-ſheep with in the field, the farmer begins to ſet up his fold in the ſame on purpoſe to fold his ſheep that feed on theſe thetches. This he fails

not to do every fair night after the ſheep have been fed on the common, or other field, about half the ſame day, and the reſt of it fed and baited in this thetch-field, till they get their bellies full, for enabling them to dung and ſtale in a plentiful manner: and, that theſe ſheep do no more harm in the field of thetches than what cannot be helped, the farmer acts the good huſband, and runs a row of hurdles a-croſs it, to confine them to their due bounds; that, when one part of the thetches are fed enough down, he moves them farther to give them a freſh bite, and ſo from time to time till the whole field is fed and folded over.

Thus a farmer enjoys a plentiful dreſſing in the cheapeſt manner poſſible, even to a double profit, one by the ſeed, and the other by the dungs and urine of theſe excellent creatures ſheep; creatures whoſe excrements agree with almoſt all ſorts of land, that thus may be improved to a very high perfection both early and late: that is, this profitable piece of good huſbandry may be carried on from the month of *May*, to near *Michaelmas*, by feeding down alternate ſowings of this thetch-ſeed; which gives a farmer early and late opportunities of enjoying the profit of their ſeveral gradual green crops for his different ſorts of cattle. If he is to feed his horſes with them in the ſtable, how valuable is a field

field of them that is ſituated near home? For then the ſervant can mow them every day, or every other day, and bring them home freſh for feeding his team of horſes with them, that will thus enable them, with a little corn to do a great deal of hard work, and, at the ſame time, keep them in pure health; for the green thetch, thus given, will keep their bodies open, preſerve their wind, hinder the ſwelling of their legs, and the cracking of their heels; prevent farcies, mange, and ſurfeits; and, in ſhort, nouriſh theſe ſerviceable creatures to that degree, that with good management they may be kept in good fleſh, and in good heart, while they labour early and late. So may cows be fed with this excellent green food in the ſame manner horſes are, even till the thetch gets into its kidding or podding growth, and be given to them in the cow-houſe, where they may feed on this luſcious green meat, during the hot ſummer ſeaſon, and at the ſame time be delivered from the teaſings of the troubleſome, painful, biting, fly, and the ſcorching heat of the ſun, which, when theſe creatures feel in exceſs, while they are confined in an open field, it fatigues them to that degree, as to leſſen their quantities of milk, that, in a conſiderable number of cows, muſt amount to a great loſs; and although it may be objected, that this is a troubleſome and chargeable way, thus to mow green

thetches, and give them to horſes and cows under cover, it may be well anſwered, that, by a farmer's ſo doing, he reaps ſeveral advantages, which he would not enjoy, if the horſes and cows were fed in the open field. For, firſt, by their being kept up in the ſtable and cow-houſe, they are prevented trampling down and ſpoiling almoſt as much green meat as they eat, which both theſe quadrupede ſorts generally do, by their running about, endeavouring to free themſelves of their fly enemies. Secondly, the farmer, by this means, enjoys much more profit by their milk; for the ſucculent large ſtalks of green thetches are ſo juicy, when freſh cut, that they produce abundance of milk, while cows feed on them in a cow-houſe. Thirdly, they are hereby delivered from the torment of aking feet, which is a misfortune inſeparable from thoſe cows who are daily drove on hard ground to diſtant fields; for, by ſuch a drift, the cattle's feet are made ſore, even to a lameneſs, by reaſon they ſometimes are cut by the ſharpneſs of ſtones, or if not cut, the gravel that they take in and lodge, will not fail to give them ſome pain; and then the conſequence is, that ſuch a cow falls off her milk, and, withal, perhaps, to a great degree of loſs; a loſs that I have too much experienced myſelf, while I was neceſſitated to drive my cows to ſome

diſtance,

diſtance, before they could arrive at the field of graſs or thetches; for cows may be fed on the green thetch, while it is growing in the field, as well as horſes; but, for theſe reaſons, it is much better to feed them under cover, if the near ſituation of a field will admit of it; and, if it does not, I am ſure that a ſmall drift, whether it be on hard or ſoft ground, will do them ſome harm. Fourthly, cows are, by this means of feeding them on mown green thetches in a cow-houſe, free of the danger of hoving, which is a danger that all cows are liable to, that feed on them in the field; a danger that expoſes a farmer to the loſs of all his cows in one hour's time or leſs, if they feed on green thetches in a wet day, and in a high growth of them, with a very hungry appetite; becauſe their ſappy ſtalks are then loaded with liquor and wind, which, if taken into their bodies in too great a quantity, may probably hove and burſt them. Laſtly, when either horſes or cows are fed daily with mown green thetches under cover, they will make abundance of dung, which though it is a ſoft ſort, and not ſo good as that produced by the feed of hay and corn, yet it may be made to do the farmer great ſervice, if he ſaves it in a right manner, and applies it as well; that is, if he preſerves it from the waſh of rains, mixes it with harder dungs, and lays it on gravelly, ſandy, chalky, or other dry,

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dry, hot ſoils, where ſuch cool, greaſy dung will do moſt ſervice. And how precious a commodity all dungs are to a *Chiltern* farmer eſpecially, who rents ſeveral fields of hungry ſoils at a great diſtance from towns, which incapacitates him to receive any benefit from buying dung, ſo far off, when he thus enjoys it at home in the cheapeſt manner poſſible; which leads me to obſerve further, that there is no piece of huſbandry in all the virgilian or old way of farming, that exceeds this of ſowing thetches, and feeding their green crops off with cattle kept in the field, or houſe; for, in either way of feeding them, they do the ground great ſervice, becauſe theſe, like pea-crops, prevent the breed of weeds, and kill others that are old poſſeſſors of the field, by their great and cloſe cover.

They likewiſe, at the ſame time, hollow the ground to that degree, that one ploughing of it afterwards for ſowing the ſame with turnips or rapes, or wheat, will do where two would not, if a crop of thetches had not preceeded their ſowing; and when a crop of green thetches are eaten or mown off the land by *May*, or the beginning of *June*, ſuch land may, by only one or two ploughings at moſt, be brought into a fine tilth, fine enough for receiving turnip-ſeed of the forward ſort, or a late ſort; if the forward ſort are ſown, as the ſeed of the *Dutch* turnip,

they may be drawn or fed off time enough to ſow the ſame field with rape-ſeed; and, after theſe are done, a wheat-crop, or a barley-crop, may be ſet on the ſame; and all this performed without the help of carrying any dung or manure to the field, provided ſuch thetches, turnips, and rapes are fed off with ſheep; for by this means the ground will be full rich enough to carry forward any of theſe after-crops to great perfection, becauſe the weeds will be crippled, and the land plentifully ſtored, and furniſhed with the nitrous qualities of the ſheeps dung and urine. But the profit of feeding green thetches is more than ordinary known to the farmer that ſuckles houſe-lambs. Theſe enjoy their benefit by their ewes that feed on them in the field, and, by this juicy food are capacitated for a long time to give abundance of milk, that nouriſhes more than their own lambs; for green thetches will perform all this, when natural graſs cannot, becauſe, when this is dried or burnt up by the violent heats of the ſun, the green thetch grows faſt, as being ſecured in its roots by the ſhade of its ſtalks from this misfortune. and, indeed, in this and ſome other reſpects is of greater value to a farmer, than either clover, trefoil, or ſaintoine graſſes; for, if theſe artificial graſſes are fed down too cloſe by the ſheep, their ſtalks will bleed, or ſpend their ſap ſo freely, as to cauſe

their

their after-ſhoots to grow up weak and late, if not quite kill them; a misfortune that the farmer is not in danger of from his feeding a crop of green thetches; becauſe, when theſe are fed bare, he ploughs up the ſame ground, and then there is an end of the thetch-crop. This long diſcourſe on the profit of ſowing thetches I write from the field of practice, becauſe I every year ſow this ſeed myſelf; and what I have wrote of the ſame, is well known to be the words of truth by thoſe farmers who do the like.

The green thetch, mown and given to horſes in racks, is an excellent ſoiling for them, will fat them very expeditiouſly, and is one of the wholeſomeſt of vegetables to this ſerviceable beaſt. A mare fed on them, a few days, will be ready to take horſe. A cow fed on them, in field or houſe, will give abundance of milk, and fatten at the ſame time. Nothing exceeds the feed of the green thetch for ſudden fattening of ſheep, making ewes fatten lambs a great pace, and if ſtore-ſheep are fed on this green thetch, it will cauſe them to dung and ſtale very much in the fold, to the great improvement of the land; on which account, either fat or ſtore-ſheep may be kept in the thetch field, even till it is in bloſſom, and a little time afterwards; in ſhort, I feed my plough-horſes with theſe green thetches or vetches, and find they work under their feed

with pleaſure; but, after the firſt mowing or cutting of them, they do not rally, as we call it, *i. e.* they do not grow again to much profit. When thetches grow into a thick crop, they require good weather to dry them in; therefore, thoſe who ſow thetch-ſeed late, are in the wrong of it; for I have known ſuch forced to mow them for a corn crop in *September* and *October*, before they could venture to cut them down for the rain, and then they proved good for little; for a crop of thick grown thetches is very hard to get dry, after being thoroughly wetted.

In *June*, the thetches ſown in *March* or *April*, are likely to be in bloom; then, as ſoon, as the forwardeſt are ſo, begin to mow them for feeding horſes in the ſtable, and they will not only produce a great deal of dung, but fat them very ſuddenly, and keep them in health. By thus letting your thetches grow to a large cover, they will kill weeds, and ſo hollow the ground, as to become an excellent preparation for ſowing the ſame land with wheat, on one or more ploughings, with good manure. Others will let them grow to a length, and after rolling them flat, will plough them in as a dreſſing for ſowing and harrowing in wheat on only one ploughing, as *French* wheat is done for the ſame purpoſe, and it will prove a great aſſiſtance, eſpecially, to all ſandy, gravelly,

velly, and other ſuch ſoils; but this ſhould be done, the latter end of *September*, that the green haulm may have time to lie and ferment, and rot in the ground, for two or three weeks, or more, before the wheat is harrowed in. Or, if the thetches are not too forward in their growth, it may be better done in *Auguſt*. Others that ſowed thetches, for feeding their ſtore-ſheep on them in the field, will enjoy this vegetable in a very great perfection, becauſe this feed will this way create a great deal of good dreſſing by the fold, and at the ſame time keep the ſheep in rare heart and fleſh, when graſs in fields, and on commons, is ſcorched up.

Thus, by ſowing thetches in ſeveral pieces of ground, in one or more fields at different times, they will be ready for this uſe in *May*, *June*, *July*, *Auguſt*, and *September*: an improvement that is much put in practice of late, both in vale and *Chiltern*, and like to be more and more, ſince it is not only exceeding ſerviceable to the ground the thetches grow on, but alſo to ſeveral ſorts of cattle, in a time when no other green meat, perhaps, can be got.

In *June*, thetches are in many places juſt in bloom; or, if they have begun to pod or kid, may be fit to mow for making hay of them: to do which, cock them in little wads as we do clover-graſs, and, after two or three turns, they

may be hayed enough to carry into the barn. The reaſon why ſome mow them while the leaf is on their ſtalks, and before they are ripe, is, becauſe the leaves, and kids, being all green, become a rare food in froſty ſeaſons for horſes, cows, or ſheep, who will eat even the very ſtalks up clean, to their quick encreaſe in fleſh and courage, for ſuch fodder will ſupply both oats and hay: whereas, if they were to ſtand till ripe, the leaves would fall off, and the cattle eat nothing but the kids, becauſe the ſtalks then would taſte bitteriſh, and be refuſed. This is an excellent piece of huſbandry, though obſerved by few.

I call thetches green, becauſe it is here meant, thetches growing before they are in bloſſom, or all the time they are in bloſſom; and, when in this condition, green thetches are made uſe of, for feeding horſes in the field, or mowed daily, and given to them in racks in the ſtable, they are of excellent ſervice to the farmer, becauſe they fat horſes ſuddenly that do not work; or, if they are fed on them under their ploughing and carting, they will prove hearty and healthful food, by cauſing them to be leiſurely looſe in their bodies. It is theſe green thetches that give many farmers the profitable opportunity in ſummer-time of feeding their ſtore-ſheep, by baiting them on the ſame part of every day, after they have

have been feeding on the common all the morning; which double feeding gives the ſheep a full belly-full, and then they dung accordingly in the fold.

If thetches are ſown early in *February*, in a right ſoil that is in good heart, they will be fit to mow for feeding cattle in the rack in *May*, or for feeding them in the field with this fattening green food. If mown for the rack, one acre of them will go further than two eaten in the field, by reaſon of the great ſpoil the cattle make in the field, by treading and damaging the tender ſtalks with their dung and ſtale, and at the ſame time greatly enrich the earth by their full cover, as I have before obſerved; which adds another valuable advantage to the farmer, for, by the good qualities of ſuch a full crop of thetches, the earth is brought into ſuch a hollow fine condition. It is uſual with great *Chiltern* farmers, eſpecially who occupy large incloſed fields, to ſow thetches at different times, that one crop of thetches may ſucceed another to eat and fold upon; and when they have been thus eaten by the ſheep, the ſame land may be ploughed up, and ſo again it may be ploughed once or twice after, in order to get a tilth for wheat. Others will plough thetches in, when almoſt knee-high, to lie and rot in and dreſs the ground for a wheat crop, inſtead of dunging it, and they

will ſmoak and ſtink while they are putrefying, to the great enriching of the ground, for producing a large wheat crop. This is one of the beſt ſorts of huſbandry; for, by this management, a ſmall incloſed farm may be made to feed a great many ſheep.

Beſides ſowing thetches to be fed green by my horſes and cows, I likewiſe enjoy their benefit by letting my folding ſheep eat them in the field, thus; I hurdle a ſmall parcel out, and, after my ſheep have fed on the common till about two or three o'clock in the afternoon, I have them brought in to the field, and bait them on theſe thetches, which fills their bellies, keeps them in health, and half fats them; therefore I fold them in the ſame field every night, for dreſſing the fallow ground, and thus prepare it for the reception of wheat ſeed at *Michaelmas* following, to the ſaving a great expence, that I muſt be otherways at, in buying of manure to ſupply the ſame.

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Threſhing Tares, Oats, Peaſe, Beans, &c.

The thraſhing of oats in *Middleſex*, *Hertfordſhire*, and in vale countries is performed all one way, but their cleaning is not; for, in the vale, they differ from the two firſt countries, by wind fanning their oats after this manner.

The Vale Way of cleaning Oats.

After they are thraſhed, they rake and cavin them, to get out the ſhort ſtraws, and other groſs foulneſs; which when they have done, they are ready for the wind-fan; and accordingly the wind-fan is brought, and two men and a boy employed to clean them; ſome fan the chaff like kernels, and trumpery out of doors into the yard; others, that are better huſbands, fan all their oats ſo as to ſave their chaff in the barn with the lighteſt kernels. The tail, or light part of their oats, they ſometimes fan twice.

The Way of cleaning Oats, in Middleſex and Hertfordſhire.

Their way of cleaning oats is much the ſame in one county as the other. They proceed thus: As ſoon as the thraſhing part is finiſhed, they rake off the ſhort ſtraws from the heap, and paſs the reſt through the cavin large holed ſieve; when this is done, they fan them with the knee-fan; then paſs all through a ridder-ſieve, which lets out the beſt oats, and cauſes the trumpery to riſe up to the top, which is taken out by the hand of the ſifter, and put into a place by themſelves. Next, in caſe the oats are thus almoſt cleaned, they only flack them with the knee-fan again, to take out all the remaining ſeeds of weeds, very light kernels, and other trumpery,

pery, and ſo buſhel them up into a ſack; but, if they were not ſo clean as to do with what I have wrote, they paſs them a ſecond time through the ridder, or riddle-ſieve, and then they are commonly done in perfection.

The Vale Way of cleaning Beans, Peaſe, and Thetches.

After theſe are thraſhed, the heap is raked, and both corn and chaff paſſed through the cavin-ſieve: when this is done, any of theſe grains are ready to be cleaned by the wind-fan, which will blow away the chaff and trumpery ſufficiently for ſacking them; for they ſeldom fan theſe twice.

The Middleſex and Hertfordſhire Ways of cleaning Beans, Peaſe, and Thetches.

Peaſe and thetches are commonly cleaned thus: As ſoon as they are thraſhed out, the ſtraw and trumpery are raked off the heap; then they are throwed by the caſting ſhovel, to take out and ſeparate the chaff from the peaſe and thetch: next, they are paſſed through the wheat ridder ſieve, for clearing them of burs, ſmall kids, and ſuch like offal; which, by the riddling, or round ſifting, cauſes them and the rubbiſh peaſe or thetches, to riſe on the top, and ſo are taken out by the ſifter's hand. They never throw theſe twice, becauſe they are of the heavieſt

heavieſt ſort of corn, and therefore the eaſier ſeparated from their chaff at once throwing. horſe-beans are cleaned in the ſame manner, as peaſe and thetches in theſe two counties, and ſeveral others. Two men are ſeldom ſeen to clean corn at one and the ſame time in theſe counties, unleſs the floor is a very large one indeed. One man can fan and clean five quarters of oats in a day; for theſe are of too light a body to clean by throwing. And one man can clean fifty buſhels of peaſe in a day, by once throwing and ſifting them. I ſhould have ſaid, that the thraſhing of beans, peaſe, and thetches is done all one way in vales, *Middleſex* and *Hertfordſhire*; except that, in *Middleſex*, they for the moſt part bind up the horſe-beans in ſheaves, as ſoon as they are cut or reaped, and then they are lain on the thraſhing-floor as we do wheat-ſheaves ready for the flail; and it is by this means that ſuch horſe-beans may be thraſhed eaſier, and much ſooner than in the vale, or *Hertfordſhire* way, which is to ſpread them on the barn-floor promiſcuouſly as they are mown and brought out of the field.

How ſome clean their Corn in Oxfordſhire.

Their general way of cleaning corn, here, is by the wind-fan; but when there is an urgent neceſſity for cleaning a griſs of wheat to be ſent to the mill, a couple of women will ſometimes

take a ſheet in their hands, which, by flacking to and fro, will clear the chaff from the corn; but this is a make ſhift; for this ſort of cleaning will not do for market. About twenty or thirty years ago, women in ſome parts of this country, as well as in many more, would exert their ſtrength and ſkill in huſbandry affairs, more than they do now; for then they would reap corn, fill dung-carts, drive a team, and now and then, for making haſte, would mount a horſe and ride away with the ſame to the mill or otherwiſe.

The Kentiſh Way of Thraſhing Corn.

Here they are ſo ſagacious, as to bind up not only their wheat in ſheaves, but alſo bundle up all other corn; by which means the ears are laid in two rows, one againſt the other, and thus give the thraſher an opportunity of beating out more corn in one day, than when it lies promiſcuouſly or in a confuſed manner on the floor. I ſhould enlarge here on their wiſe method of firſt tying up their corn in bundles in the field before they houſe it; but, as I have been pretty copious on this matter before, I ſhall write no more here of it.

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BOOK X.

Of the CULTURE *of* BUCKWHEAT.

CHAPTER I.

The advantages of ſowing French *Wheat.*

FIRST, it is a triangular ſeed, in ſhape like a beech maſte, and about the bulk of a ſmall pea: It yields a great quantity of white nutritious flower, with which ſome of the poorer ſort of people make bread. Secondly, It is very ſerviceable for feeding and fattening ſwine and fowls; for which purpoſe, in *Suffolk* and *Norfolk* in particular, they ſow a great deal of this grain, not only for dreſſing their hungry, ſandy lands, but for raiſing ſeed to feed and fat their turkies and geeſe, which every year they ſend to *London* in vaſt numbers. It alſo feeds pheaſants, partridges, pigeons, yard-fowls, &c. very expeditiouſly. But I think it was villainouſly applied

when given to a horſe for ſuddenly fattening him, to ſell and deceive the buyer, as it was done at a certain fair in the North; for, when oats and hay were put before him, the horſe refuſed both, to the wonder of the beholders, and ſo continued for ſome time; till, at laſt, a cunning fellow, ſuſpecting the bite, adviſed that ſome bread might be given him, and he greedily eat it; by which behaviour they diſcovered the matter, and found that this horſe had been fed with bread made of *French* wheat. Thirdly, milch-cows will feed on the growing ſtalks of *French* wheat in the field, and milk very well on this ſucculent plant, which, as ſuch, receives much aſſiſtance from the air, as all the very juicy tribe of vegetables in particular do. Fourthly, It is likewiſe excellent food for ewes or wether ſheep, in the forward part of winter, if ſown in this month or next. Fifthly, If mown in time, it will ſerve as hay for winter fodder. Sixthly, It kills weeds, and very much hollows the ground by its great cover, retains the dews, and keeps the earth moiſt for nouriſhing its ſhallow roots. Seventhly, Near *Norwich*, they manage their *French* wheat this way: With one plough, they plough it in for a dreſſing to their ſandy ground, and immediately that is followed by another plough. The firſt plough turns the *French* wheat in, and the other turns a furrow of mould

on

on that, by which it is all buried almoſt at one and the ſame time; then they harrow in their rye or common wheat directly to great advantage, *French* wheat, as I have ſaid, is alſo ſown with weld-ſeed, to protect it againſt droughts, and the damage of weeds. If it feeds ſwine, they give peaſe after it, or pollard.

CHAP. II.

THE CULTURE OF FRENCH WHEAT.

MY field was a gravelly loam, that had a crop of oats laſt on it, and, on the tenth of *December*, I ploughed it with the wheel fallow-plough into broad-lands, which I let lie till the beginning of *March*, when I harrowed it plain, and then directly hacked it a-croſs with the ſame plough. In this poſture it lay till the 7th of *May*, and then I ploughed it again, and ſowed rather above half a buſhel of ſeed on the rough ground broad-caſt, and harrowed it in once in a place: When this was done, I immediately ſowed my other half buſhel, and harrowed a-croſs twice in a place; by which means I haled it or covered it from the fowls, and ſecured it better from the ſcorching heats, than if it had been harrowed firſt, before any was ſown. If you ſow this ſeed, to plough its crop in, for a dreſſing to common wheat, then you ought to ſow it the begin-

beginning of *May*, that you may have time enough to plough it twice or thrice; which they do in ſome light grounds, in order to mix it well after it has firſt lain and rotted; but where it is to have only one ploughing in, then it may be ſown the latter end of *May*. In ſome parts, in their ſandy land, they plough it in with a wheel-plough ſhallow, and then immediately a foot-plough follows, and throws up a ſecond mold or ſand upon that, and then harrow in their common wheat, to give it a deeper bottom. Some, to have a crop of this *French* wheat, will make a fallow and dung for it, as for other wheat. If it is ſown for ſeed, it may be done the latter end of *May*, or in all the month of *June*.

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BOOK XI.

Of the CULTURE *of* TURNIPS.

CHAPTER I.

OF THE SOIL FOR TURNIPS.

FOR near thirty years I have ſown turnip-ſeed in my clayey, loamy, gravelly, and chalky fields; and find that the clayey loams return the largeſt and rankeſt-taſted turnips, and the gravels and chalks the ſmalleſt and ſweeteſt; though it muſt be owned, that a ſandy loamy ſoil produces the beſt turnip of all other earths.

It is true, that there are different ſorts of ſoils in vales; but the general ſoil is a blackiſh clay, or ſtiff black-and-blueiſh loam, as it is throughout the greateſt part of the fine fertile vale of *Ayleſbury*; a ſoil too fertile, in moſt places of it, for the growth of peaſe or turnips. If peaſe are ſown here, they will run ſo much into ſtalk or haulm, that they will kid or pod the leſs for it; and if turnip-ſeed is ſown in ſuch rich earth,

they will run into ſtalks and leaves to ſuch a degree, that they will have the leſs roots for it: But admit they did apple or bottle well, and grow here into a larger ſize of roots, yet they are neither fit to be fed on the ſame land, nor to be drawn to be fed elſewhere. If an attempt ſhould be made to feed ſheep, oxen, or cows, with turnips, on the ſpot of ground they grew on, and in the winter, the cattle would ſo ſink in and ſtolch it, that they would eat their meat in miſery, and grow rather leaner than fatter. Beſides, in ſuch an earth and ſeaſon of the year, the beaſt would daub and dirty the turnip in eating of it, and conſequently make it an unwholeſome food, ſo as to breed the red or white water, and perhaps a rot. But this is not all the miſchief that attends ſuch a vale turnip-crop; for if, to avoid the laſt evil, the turnips are drawn to be fed on meadow, or other dry ground, there would remain behind ſo many hollow places or holes in the land, as would give the rainy waters room to make a lodgment in them; and as, by this means, ſuch holes become receptacles for holding and retaining water, it would ſoak through moſt or all the upper part of the earth, and the whole ridge-land would be greatly damaged by it.

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CHAP. II.

OF PLOUGHING FOR TURNIPS.

THIS is not written in behalf of the vale-farmers, who rent ſuch low, wet, ſtiff lands, as forces them to lay it up in a ridge poſture, for avoiding the damage of inundations of waters; becauſe it is not to the intereſt of thoſe to ſow turnip-ſeed, for reaſons I have heretofore ſhewn, although the ſame is ſo much in favour of the *Chiltern* farmer, that, next to wheat-crops, I believe I may ſay, turnip-crops are the next chiefeſt profit, becauſe they not only employ the land the fallow year, and lay it under a profitable crop, while it would otherwiſe lie idle; but, by the turnips being fed with ſheep, the farmer obtains a dreſſing worth ſometimes twenty ſhillings an acre; for ſuch dreſſing oftentimes ſo enriches the ground, that with a little more help (and ſometimes it will do the feat without any) it will return the farmer an excellent crop of wheat, or barley. But, as a full crop of theſe is not to be expected, unleſs a due preparation is made for the turnip-crop, a right *Chiltern* huſbandman takes timely care to fallow, or, to be plainer, plow up his bean or his pea, or his oat ſtubble in *November* for the firſt time, in order to let the ſame land lie to be improved by froſts and ſnows;

for, if theſe happen in any great degree, it will be much the better for it; the froſts will ſweeten and ſhorten it, and kill the weeds, which perhaps hereafter would greatly damage the corn-crops, that are to ſucceed. The ſnows likewiſe very much contribute to improve the land with their nitrous quality; after the ground has been once plowed for turnips, we commonly let it lie till this month, before we plow it a ſecond time, which is called the firſt ſtirree for turnips, in order to plow it a third time in *May*, or *June*.

But to be more particular in this my account, of preparing ground for a turnip-crop, whether it be a gravelly loam, a chalky loam, an intire ſhort loam, or a ſtiff loam; I ſay, whether it be any of theſe, we in *Hertfordſhire* generally plow an oat, or pea, or a bean-ſtubble up, the firſt time in ſingle bouts, or form the beſt of all others, becauſe it lays the earth up in the higheſt poſture that a plow can do it in, and thereby expoſes it to the power of the air, and conſequently to the froſts in the moſt exalted manner, for the deſtruction of the ſeeds of weeds, and ſhortening and ſweetening the ground; which it ſeldom fails to do, becauſe it has a whole winter ſeaſon to do it in. Then, as I ſaid, in *April*, a judicious farmer will plow it a ſecond time, by bouting it again off the laſt bouts; and then, I believe I may ſay, the whole ſurface

of

of the land has been removed, or ſtirred to perfection; yet that it may be made intirely fine and ſweet, in the next month of *May*, this ſame land is to be back-bouted, and thereby prepared for the work of the harrows, for theſe have not been made uſe of all along. Now, about the latter end of *May*, the harrows are to be employed in harrowing the earth plain, in order for the farmer to lay on it his rotten dung; which when ſpread all over the ſame, in *June*, he will plow it into the ground, and then the whole ſurface of the incloſed field is ready to receive the turnip-ſeed, that is to be ſown and harrowed in.

Thus I have given one particular account of the proceſs of preparing an oat, a pea, or a bean-ſtubble, for a crop of turnips. But there are ſeveral other ways of doing it, according to the nature of the earth, and a farmer's fancy, which, if I was to write here, would take me up more room than I can at this opportunity ſpare; and therefore I ſhall proceed to obſerve, that where a farmer deſigns to get ſo early a crop of turnips, as to draw and ſell in *July* or *Auguſt*, or ſooner, he ought to prepare his ground accordingly; which leads me to write on farther particulars relating to turnip-crops.

Where peaſcods have been gathered, or other peaſe are ripe and cut off, there you may, in

ſandy or other light hot ground, give it one plowing, and harrow in turnip-ſeed. This is frequently done in many places, eſpecially where the *Carolina*, maſters, hotſpur, and other forward peaſe are ſown, by the three-wheel drill-plow; and thus by ſowing turnips the latter end of this month, particularly the *Dutch* ſort, you may have a crop of wheat ſucceed.

Manures, or Dreſſings for Turnips.

It is to little purpoſe for any to ſow this ſeed, on three accounts. 1*ſt*, If the ground is not before-hand plowed into a fine tilth. 2*dly*, If it is not well manured. And, 3*dly*, If the turnips are not well hoed. I ſhall here only touch upon the ſecond article, and that is, 1*ſt*, If you dung the land for a crop of turnips, and it be of the long ſort, it ſhould have been plowed in at fallow-time, either before *April*, or in that month, or in *May* at fartheſt, that it might have time to rot and mix with the earth; but if it be ſhort, rotten dung, then it may be ſpread a little before the laſt plowing, and plowed in, for harrowing the turnip-ſeed on it. 2*dly*, Or you may ſpread forty, or better ſixty buſhels of lime over one acre, and when it is ſlacked, you may plow very ſhallow, and harrow your turnip-ſeed on the ſame. 3*dly*, Or you may, as a top-dreſſing (as we call it) ſet

your fold, and run it over the field as faſt as poſſible, elſe the ſheep will damage the young turnips, unleſs they are parted from them in time, by hurdles. 4*thly*, Or you may ſow ten buſhels of peat-aſhes over each acre as ſoon as the ſeed is ſown, or ſow them and harrow them in with the ſeed. 5*thly*, Or ſow forty buſhels of ſlacked lime over the acre, after the ſeed is ſown. Or, 6*thly*, Do the like with ſoot. The laſt five dreſſings will keep off the worm, fly, ſlug, grub, and caterpillar.

To prepare a Bean-ſtubble for Turnips.

It was bouted overthwart the broad-lands, in *January:* The beginning of *May*, it was back-bouted. The beginning of *June*, it was thoroughed down. At the latter end, it was harrowed plain, then dunged, plowed, and the turnip-ſeed harrowed in. This was performed in a wet, loamy, flat field of land in the *Chiltern* country.

Sowing Turnip-ſeed in Drills.

In this poſture, turnip-ſeed may be ſown out of a hopper of the three-wheel or pulley drill-plow, in ſhallow drills, which may be afterwards cloſed by hoes, harrows, or by two ſticks, fixed behind the broad boards, which leave the drill under a ſmall ridge; and this by only altering or ſhifting the round cog inſtrument under the

hopper, that is proper to drop out this ſmall ſeed. For this purpoſe, the land muſt firſt be got into a very fine tilth, by frequent plowings with the common plow, and, if you can, dunged ſome months before with muck rotted very ſhort beforehand. The drills may be made from two to ſix or eight feet diſtance: If left very wide, then wheat may afterwards be ſown in drills between the turnips. Here turnips will thrive much better, than thoſe ſown in the random way, becauſe, in the drieſt ſeaſons, and in the drieſt ſoils, they will come up in leſs time, tho' leſs ſeed is ſown this way on an acre of ground, than when ſown broad-caſt. Alſo, in this drilling poſture, turnips are prevented from burning, or growing yellowiſh in their leaves a long time; are eaſier hoed, better ſecured againſt the ſlug, fly, worm, and caterpillar, and from that common deſtructive turnip diſeaſe, which in the ſandy grounds of *Norfolk* frequently happens to great numbers of acres in a ſeaſon, and is there called—*Anbury*—and which in a little time reduces one acre of fine large turnips, worth thirty ſhillings, to be worth no more than five. By theſe plows, turnip-ſeed may be drilled on level ground, or on ridge-lands, and, by being hoed by the break and hand-hoe in the intervals, wheat may be ſown in *September* to great advantage; after which the turnips may be carried off, and ſold

or

or eaten elſewhere, that the ſame ground may either lie fallow, till barley or pea-ſeaſon, or cole-ſeed, or artificial graſs, may be drilled in the inner ſpaces to great profit. Or, I have known this done, in the month of *April* or *May*: You may ſow white, blue, or hotſpur peaſe in drills, at ſix feet aſunder, and at the ſame time harrow ſome *Dutch* turnip-ſeed, ſown broad-caſt, in the intervals, or it may be drilled in, as I ſaid before, and afterwards hoed; by which management, the ground may be all cleared at a time, to drill in wheat, or ſow it in the common way. Sands, gravels, and dry and moiſt loams are the moſt natural ſoils for turnips, and ſo are ſome ſorts of rich moiſt chalks; but the dry, ſhallow, hurlucky ſort is too dry for turnips to thrive in, for here they will lie ſo long before they get into a third or fourth leaf, that they will be in great danger of being devoured by the fly and ſlug, unleſs the weather be very rainy. But this drill way of ſowing, with good manure beforehand in the ground, will make ſuch earth hollow and rich, and cauſe the ſeed and turnips to grow by the help of only dews, and the ſhallow cover of looſe ground, to great perfection, but the drills muſt not be made too deep, leſt the ſeed be buried; and for ſecurity, after ſome earth is pulled down by the hand-hoe on the firſt ſowing,

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more ſeed may be ſown on that, and covered. Thus you will have two comings up of turnips, and the ſurer ſtill, if you ſow old and new turnip-ſeed, which will prove another ſecurity againſt the fly and ſlug, for, if one is eaten, the next may ſtand. Or, beſides what I have written before of ſowing peaſe, or wheat, broad-caſt between the rows of turnips: You may drill the turnips at ſix feet aſunder, and afterwards ſow wheat in a drill in the middle; and after the turnips are either eaten off by the incloſure of hurdles with ſheep, or pulled up and given elſewhere to cattle, peaſe, or barley, *&c.* may be drilled in their room; ſo that both crops may be got off almoſt together. However, this drilling practice will not anſwer in too ſtony grounds, nor even in ſome very dry looſe ſands, becauſe the ſands will tumble down ſo faſt after the ſhare, that the drill will be filled before the ſeed can fall in; but, where ſuch earth will ſtand long enough for the ſeed to fall in, it will anſwer to good purpoſe. Remember, that the richer the land, the later you may venture to ſow turnips, either in drills or broad-lands, for, in ſuch a ſoil, latter ſown turnips will overtake thoſe ſown ſome time before in poorer earth; and, whenever you ſow wheat after turnips, there ſeldom fails a good crop. Do not be ſo much afraid of burying your

your turnip-ſeed in drills, as to let it diſcourage you in this drilling-work, for it has been found that turnip-ſeed, like ſpinage-ſeed, will come up at three or four inches depth; but, if you doubt this, you may, as I ſaid before, ſow another parcel of turnip-ſeed out of the drill-hopper, or hand, on the top of the firſt, and with the hand-rake, or with a ſingle light harrow, you may cover the ſame with a ſufficient quantity of earth.

Plowing and Sowing Turnips in Vale Grounds.

The aforeſaid operations, by diverſity of plows are not to be performed here, becauſe in theſe ſituations they never plow but one way; and that is done ſometimes by ridging up, and ſometimes by caſting the ground down with the foot-plow. Here the land generally lies in acre and half-acre of lands, but for the moſt part in the latter: Where their ſoil is a black or bluiſh, rich, clayey loam, they dare not ſow turnips in it; for, if they ſhould ſow turnips in this rank, dirty, wet, ground, it would be very likely attended with ill conſequences; as, their running into little roots, and great ſtalks and leaves; and, if it ſhould happen, that they take well, and be a full crop, yet then it will not anſwer, becauſe the ſheep, in eating them off, will ſtolch the ground, daub the turnips,

eat

eat their food in miſery, and perhaps, get rotten into the bargain; and, if they are drawn to be fed on meadow, or more dry ground, then there will remain ſuch hollow places, that, in this ſtiff, wet ſoil, will prove ſo many receptacles for the lodgment of waters, which in courſe will ſour the earth for years after, as I have known done, and greatly damage the ſucceeding crops; beſides which, there will not be time enough allowed, for giving the land any more than one ploughing for barley; and then, I believe I may ſay with aſſurance, that there will be ſuch a bad raw tilth, as to cauſe a very poor return at harveſt, as has been proved in ſeveral places in the vale of *Ayleſbury*, and even upon the very edge of it, in the pariſh of *Eaton*, as I ſhall in another place, more largely treat on. Yet is this caution not without exception, for in ſome vales, as well as the vale of *Ayleſbury*, there are many proper ſituations and ſoils fit for ſowing and eating off turnips on the ſame; as ſands, ſandy loams, ſandy clays, whitiſh ground, gravelly loams, and intire dry loams, that will very well admit of this practice.

In ſowing turnip-ſeed on broad-lands, regard ſhould be firſt had to the after uſe the ground is to be put to. If you intend to ſow the ſame land with wheat, then ſow the *Dutch* forward turnip

turnip, to be eaten off in *September* or *October*. If you would have them ſtand part of the winter, ſow the green tankards or green rounds; but if the whole winter, then ſow the red tankands, or red rounds, for your ſheep or bullocks. Again, in caſe your ground is a wettiſh ſoil, here ſow the ſugar-loaf, or one ſort of the tankards, for, the upper part of this turnip growing pretty high out of the earth with a thick ſkin, the ſheep may have eaſy acceſs to their food, and the water leſs power to hurt it: And thus you may manage your turnip-crop, by ſowing the proper ſeed in a due ſeaſon, for early or late feeding, for pulling up, or eating them on the ſpot, for ſowing of wheat, or rye, or barley or peaſe after them, *&c.* *July* being commonly the drieſt month in the year, and the fly of the greateſt power, it proves a caution to many farmers, not to ſow their turnip-ſeed ſo ſoon as the ground is harrowed plain, but to let it lie a day or two afterwards, and then ſow and harrow in the ſeed, becauſe the fly is apt to follow the duſt. When land is well folded, or dunged and plowed till it is got into a fine tilth, and made ready for ſowing, do not grudge ſeed, for there have been thouſands of acres of turnips loſt for want of a pound more than is uſually ſown on an acre. My quantity is never leſs than three

three pounds on one acre, and ſometimes four, if the tilth be rough; the more the better, that there may be enough for the farmer, the ſlug, and the fly. Now our method of ſowing turnip-ſeed on broad-lands is this: Firſt, he begins to ſow half a broad-land, which is about four ſteps and a half broad, by ſtepping along, within a foot of the outſide, and at every ſecond ſtep, with the right-hand, he throws a caſt from between his two fingers and thumb: When he has got to the end of the land, he comes all along the contrary ſide, and ſows here, as he did at firſt, by which two croſs caſts, the ground is ſown twice in a place, and ſo on till the field is all ſown; then he immediately harrows all the ſeed in once in a place, and leaves it till turnips are grown into their fourth ſeedling leaf, when they ſhould be hoed.

Where land lies low and wet, and will not admit of turnips to grow on broad-lands, then the farmer muſt alter his mode of plowing and ſowing. If it is to be done, in two-bout lands, or what we call four-thorough ſtitches, then, when the ground is got ready for ſowing, harrow down the ſtitches or ridges long ways, almoſt level, and then ſow and harrow in your turnip-ſeed; for here your turnip-ſeed is to be ſoon broad-caſt all over the land, by croſſing the caſts, and ſowing five

ſtitches

ſtitches in breadth, at a time, and ſo on, till the whole field is finiſhed; and, by this operation, there will remain a ſmall looſe thorough between the ridges, enough to drain off the waters from the higher ground, unleſs a flood of rain happens; for, by harrowing down the earth from the ridges, there will lodge a great deal of looſe mould, which will receive and bury the wets, ſo that the turnips will lie much drier, and in a hollower condition, than if ſuch land lay in broad-lands. If the ground lies in three or four-bout lands, it is, becauſe the ſituation of it is very low, and wetter than that of the two-bout lands, and yet not ſo wet as the ridge vale lands.

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CHAP. III.

OF THE SORT OF TURNIP.

IN the ſandy lands of *Suffolk* and *Norfolk*, they ſow the moſt turnips of any two counties in *England*, for feeding their horſes, and for feeding and fatting their *Welch* and *Scotch* runts and ſheep, for which purpoſe, they ſow the cream-coloured *Dutch* turnips, the yellow, the purple, and the green, and the red ſorts as follows: *viz.*

The cream-coloured *Dutch* turnip is of a flattiſh ſhape, and of a middle ſize; and more ſown by gardeners than farmers, becauſe of their quick growth for an early market; for this ſort will be fit to pull in eight weeks time after hoeing, if the ſeed is harrowed in forward in the month of *May*, or in *June*, provided the ſoil is of the dry warm ſort, is well dreſſed, and got into a fine tilth. And, though it naturally is a ſmall turnip, yet, by growing in a rich earth, they will become pretty large, and therefore are ſown by ſome farmers, as a common field turnip, to fat their ſheep, as the firſt crop to be eaten off time enough to plow and ſow wheat.

The yellow turnip is of the carrotty kind, and the ſweeteſt of all others. Therefore the *Suffolk* and

and *Norfolk* farmers ſow ſome acres of them in their incloſed and common fields, for their horſes as well as for fatting their ſheep and runts, becauſe this turnip is ſo luſcious and fattening, that they give them as manger meat to ſave corn; for, with theſe and hay, or with good ſtraw and chaff, they will hold to work well.

The green ſugar-loaf, or tankard turnip, is one of the ſorts ſown in *Hertfordſhire*, and many other places; has the thickeſt rind or ſkin of all others, and for which it has the moſt occaſion; becauſe this turnip ſtands the higheſt in the air of any, and therefore the moſt expoſed to froſts, which it will wonderfully reſiſt, and maintain itſelf ſound, unleſs the hard weather continues long and violent. It is a ſweet turnip, and well beloved by ſheep and cows, growing very large in rich ground, and this more eſpecially, becauſe the cattle can eaſily come by a full bite of it. But there are ſome inconveniences attending this turnip, and they are theſe: If tankard-turnips ſtand too long they are apt to grow corkey, or rot, and make cattle pine away inſtead of fattening them: This turnip is one of them that ſhould be ſown early, for, if you ſow it later than ordinary, it will run only into leaves, and not bottle; and, whenever you ſow it, it ought to be in a deep ſoil, that its ſlender root may meet with the

better encouragement to ſtrike a good way down, grow the faſter, and ſtand the ſtronger.

The green round turnip, is an excellent ſort, and of late more and more ſown in *Hertfordſhire*, and elſewhere, becauſe the true turnip of this kind grows large and ſweet, and is not ſo ſubject to be ſpoiled by froſts, as the green and red tankards are, and yet ſtands enough above ground for ſheep and oxen to come at the greateſt part of it; will bear ſcooping well, and its ſhell eaſily dug up. This turnip, as the laſt, ought to follow the *Dutch* turnip, as the ſecond or next ſucceſſive crop to that, and therefore ſhould be ſown the latter end of *July*. This is a general turnip, becauſe it will proſper in moſt ſoils, and is as good for the kitchen uſe, as it is for feeding cattle in the field: This is the moſt general turnip that we ſow for our ſheep in *Hertfordſhire*, at this time, and therefore allowed to be the beſt ſort.

The red round or purple turnip, is a hardy ſort of turnip, of the hotteſt nature, and therefore will endure ſowing the lateſt of all other field turnips, becauſe it will beſt withſtand the ſeverity of froſts and chills of waters. This is accounted one of (if not) the largeſt turnip that grows. If it is ſown in *July* or *Auguſt*, it will hold good and fit for feeding ſheep to *Lady-day*, and in ſome kind ſeaſons, till mid *April*. For, the ſake of their growing

growing in ſtiff, wettiſh loams the beſt of any, for their appling and thriving in winter, when the tankards will run only into leaf, and for their growing the lateſt of all others, this turnip ought to be preferred,

The red tankard turnip. —— Some of this ſort are very excellent turnips; ſome will grow almoſt out of the ground, and therefore are much expoſed to froſts, and ſo eaſily puſhed down by cattle, that great numbers are ſpoiled by them. But a true ſort of theſe are thoſe turnips that grow with almoſt as much of their body in the ground as out of it; ſuch as theſe contain a great deal of meat in them, and, when a farmer is poſſeſſed of ſuch, let him make much of them, and not loſe their ſeed; as many have done in our parts, whom I have heard ſay, could they have ſome of the ſame they formerly had, they would not grudge to give five ſhillings a pound for it. The red turnip delights in gravels and loams. But this, as well as the green tankard, in hard weather, is pecked by crows, rooks, and pigeons, and then the rain gets in, and rots them.

The rat-tail turnip, ſo called, becauſe of its piky root, which runs down a conſiderable length into the earth, has ſmall leaves and a green ring round a little white turnip, is one of the ſweeteſt of turnips, but too ſmall to be ſown in fields for cattle; therefore is much valued by ſome gardeners for

kitchen uſes. It is ſo hardy, as to grow in winter, when others do not, and may be ſown all the ſummer long.

CHAP. IV.

OF THE FLY.

BUT I muſt here obſerve, that though horſe, aſs, cow, and hog dungs are pernicious in breeding the fly, yet they have this good property belonging to them, that when any of them are truly ſhort, rotten, and greaſy, and thoroughly mix'd with the ground, it ſo lightens and hollows it, as to give an eaſy paſſage to the young turnip fibres, to ſtrike down and get eaſily into the earth, whereby they acquire ſuch a ſwift growth, as cauſes them to out-run the fly's rapine, and get into bitter leaves before they have time to demoliſh the crop, if the ſeed is ſown thick enough; for in poor hard ground, it is often the farmer's misfortune to loſe them, becauſe here the fly has full leiſure to feed on, and devour, the two ſeedling leaves at his pleaſure, as is evidently proved by the ſucceſsful crops of thoſe who have, in time, dreſſed their field with a due quantity of rotten dung.

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CHAP. V.

OF THE HANBURY.

THE hanbury overtakes turnips ſometimes, after they have got large roots, but moſt of all in ſandy ſoils. In *Suffolk* and *Norfolk*, the turnip diſeaſe is very common, in dry ſummers eſpecially, and deſtroys great numbers of acres of them in a year, by worms growing in little bulbs or knobs on the turnips, and eating into their hearts.

CHAP. VI.

OF THE TIME OF SOWING.

IT is the eſtabliſhed maxim, that a fortnight before *Midſummer*, and for a fortnight after, it is the beſt ſeaſon for this purpoſe, for, if turnip-ſeed is ſown ſooner in the field, they will get ſo rank, cory, and ſtringy before winter, or ſpring, that the cattle cannot eat them.

CHAP. VII.

OF HOEING.

ON this abſolutely depends the obtaining a good crop. It is true, that I have known

ſome of the worſe ſort of farmers content themſelves, to ſave charge, with only harrowing a thick crop, with two of our common four-beam harrows, which will thin the turnips, and tear up the beſt as well as the worſt plants. Others, where the crop is thin, will not hoe at all; but theſe are your afternoon farmers, as we call them: For, to enjoy a pay-rent crop of turnips, they muſt be hand-hoed in due time, that is, when they have made their fourth leaf a little ſubſtantial, to prevent their burning, or too much heating one another by their too cloſe ſtanding, otherways, they will become ſtunted, and grow to little profit. Now to do this work effectually, in the firſt place I make a bargain with my hoers, to go over the crop twice, the laſt time about a week or fortnight after the firſt, to hoe up and deſtroy thoſe young ones that may have eſcaped the firſt hoeing; which is more than ordinary neceſſary, if the weather happens to be wettiſh in the firſt hoeing-time, for then many turnips will up-ſet, and, though hoed before, will grow again. For both which hoeings, at *Gaddeſden*, that is computed to be twenty-eight miles from *London*, we pay five or ſix ſhillings for each acre of ground, and ſeldom or never more. But, where many acres are ſown, it often happens, that the hoers cannot do all, or even the greateſt

part

part of them, time enough to ſave the reſt from ſpoiling. In this caſe, the triangular hoe-plough will dexterouſly thin ſeveral acres in one day, and excellently well prepare the young turnips for hand-hoeing with the more eaſe and ſafety. If the large ſort of turnips are ſowed forward to feed cattle, they ought to be hoed at 18 inches a-part; if later, at twelve: Yet allowance ought to be made for the nature of the turnip; a ſlender long turnip will grow well forward in the year, at a foot diſtance, when ſome of the large round ſort will languiſh, if ſown ſo near.

CHAP. VIII.

OF THE APPLICATION OF THE CROP.

ONE acre of well-planted turnips will fat eight middling-ſized weather-ſheep, or feed ſix couples of ewes and lambs, with good management; that is, if racks of hay, or pea-ſtraw, ſtand conſtantly in the field, for the ſheep to brouſe on at pleaſure; for this dry meat ſecures them from the rot, from the red-water, and from hoving; misfortunes incident

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to all turnip-feeding ſheep, and that often prove fatal to thouſands of thoſe that are deprived of ſuch a ſalubrious antidote; and, for this purpoſe, ſome are ſo careful, as to have their meat-racks thinly thatched over; others have them covered with thin boards, to keep their meat dry, for then it does the ſheep twice the ſervice of wet meat. Others will be at the charge of cloſe-made rodded hurdles, inſtead of open hurdles, for keeping ſheep from being pinched by drift-rains, and piercing winds: which, with timely ſhiftings of the ſheep into freſh parcels, will, in dry land, fat them with great expedition. When oxen, heifers, or dry cows, are feeding on turnips in the field, for fatting, great care ſhould be taken that they are not choaked; and, if a piece of turnip ſticks in their throat, the quickeſt way is to thruſt a hand in, and ſhove it down. Others will keep a thick, ſtiff piece of rope conſtantly with them in the field, for the like purpoſe.

Some farmers, will draw the turnips, and feed and fat an ox, heifer, or cow in the houſe, by giving it chopped turnips in the trough, and hay in a rack, and then ſuch ox, heifer, or cow, never will drink water, becauſe the turnip, of itſelf, is ſuch an aqueous root, as very well ſupplies it: But there muſt be a good parcel of turnips employed in fatting of one of theſe horned

horned cattle, for ſome will eat half an acre, others a whole acre, according to their bigneſs, youth, and degree of fatneſs beſtowed on them.

In the year 1742, a farmer having a good crop of turnips, would keep his breeding-ewes among them, till they lambed, partly out of neceſſity, and partly out of obſtinacy, for he would ſtill venture on, and run the riſque of the iſſue; but the conſequence proved ſufficiently prejudicial, to teach him better management hereafter; for ſome of his lambs were hawled away from the ewes bodies, by meer violence, and others forced to be cut away by piece-meal; which, beſides the loſs of the lambs, cauſed likewiſe the death of ſome of the ewes. I therefore here offer this caution to all turnip and cole-farmers, that they take their breeding-ewes out of the turnip and cole-field, about a month before their lambing-time, leſt the lambs and ewes be loſt, by letting the dams feed too long on ſuch nouriſhing food; for the groſs fattening turnip-root, and quick-ſeed cole or rape-head, is very apt to cauſe the lamb to grow too big in the belly of the ewe, for lambing without help; which cannot be done, without extreme hazard of both their lives; which hazard would probably be prevented in a great meaſure, if he had taken the ewes out of the turnip-field, in due time, and put them in his meadow, and fed them

now

now and then with hay, *&c.* But this would not go down with him, becauſe he reckoned, that feeding the ſheep in his meadow, and with hay, was the greater charge, although the charge, perhaps, might have been upon a par at the ſame time with the feed of turnips; for the more hay the ewe eats, the more turnips there would have been for his wether ſheep, cows, or hogs.

In *January* it ſometimes happens, that great froſts, or deep ſnows, deprive ſheep and bullocks from coming at the feed of turnips in the field; and which likewiſe prevents their being drawn, or pulled up, for hoarding, or for a ſale at market. Now, therefore, the farmer's bad, or good huſbandry, is brought to the teſt; if he has made a turnip hoard in time, by placing a conſiderable number of them in a barn, or other ſheltered place, cloſe enough to keep out froſts, and other weather, from damaging them, then it is in his power to bring ſuch hoarded turnips out, or carrots, or parſnips, for feeding his ſheep, cows, bullocks, or ſwine, rabbits, turkies, geeſe, or ducks, with them under cover, or in an open place, ſo that theſe can have full room and power to eat them raw, or prepared; becauſe, as theſe roots are not frozen, and as cattle in ſuch froſty ſeaſons have the greateſt appetite, they will eat much, and thrive apace. Accordingly, this good huſbandry of hoarding turnips, carrots, parſnips, and potatoes, is more duly

duly obſerved in *Suffolk*, *Norfolk*, and other ſandy parts of the eaſt, than any where elſe in *Great-Britain*.

CHAP. IX.

OF SAVING THE SEED.

WHEN this is deſigned, due care muſt be taken, that the turnips are no ways bitten by any cattle, for that may prove an impediment, though many turnips have grown after ſuch damage, when not too much, and bore good ſeed. About a fortnight or three weeks before the ſeed is full ripe, one or more men or boys, ſhould be employed to keep the fowls off, for the leaſt ſmall bird will do a great deal of hurt here: This is ſo material a point, that I have known a careful farmer ſave fifteen buſhels of ſeed off one acre, when his neighbours that were neglectful, got little more than his ſeed again, and this meerly for want of guarding it in time. One man, with a gun, will guard two or three acres well. Turnip-ſeed is ripe about the beginning of this month with us, as may be known by the light brown colour of its pods. Some reap it with ſickles, as they do wheat; but the beſt way of doing it is with ſharp knives, that, by their keen edges, cut the ſtalks eaſy, without jarring the ripe pods, as the rough

rough teeth of the ſickle will be ſure to do; beſides which, a man by the knife can cut all the ſtalks off a ſingle turnip clear of weeds, better than with the other; and thus with a knife a man may cut down a rood a day.

The cuttings or rips are to be laid in rows, and in this poſture kept ſome days abroad, to hay and dry; and, as this ſeed is very apt to ſhed, ſome bring their blankets, or barn cloth, or ſacks to thraſh it on in the field. Others, again, will ſpread a barn cloth on the bottom, and about the ſides of a cart or waggon, and bring all out of the field into the barn, for thraſhing out the ſeed directly: two acres of haulm, with its pods, has filled two bay of barning, that ſometimes will yield thirty buſhels of ſeed, and more. An acre of this ſeed has been ſold for above four pounds; one buſhel of turnip-ſeed returns ſometimes two gallons of oil, by expreſſion, for the wool buſineſs, or for burning in lamps.

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BOOK XII.

Of the CULTURE *of* RAPE.

THE value of this moſt ſerviceable vegetable is known to few farmers in this part, where I live; and therefore few, very few there are, that ſow the ſeed of it, becauſe we lie too far from *London* to enjoy the benefit and advantage of it in the manner that ſome do, who live nearer that metropolis, and carry on the ſuckling of houſe-lambs. I know of none within a pretty many miles of me, that ſow this ſeed, beſides a nobleman's bailiff and myſelf. The nobleman's bailiff ſows it for his maſter's ſtore-ſheep, for feeding his weathers and ewes in *March* and *April*, and I mine; for then we bait them a few hours in a day in the rape-field, as the only green meat we have left, becauſe it is the caſe of many to be without any other at this time of the year than this of rapes, by reaſon artificial and natural graſſes, as well as turnips, are generally eaten off before theſe months. But the main deſign of ſowing rapes is to feed ewes that

that ſuckle lambs, either for fatting thoſe lambs that are brought up in the houſe, or the field, and for the ſervice of the kitchen. It is theſe rapes that are of ſo hardy a nature, as to withſtand the violence of froſts, beyond all the garden ware of this tribe; when cabbages, ſavoys, brockely, and the like were killed by the vehemency of the froſts, theſe have ſtood ſound, and ſupplied their room, as ſeveral acres of them did in the hard froſts of 1739, and 1740; and, had it not been for theſe ſerviceable plants, there had many lambs been loſt; therefore, whether in froſty or open weather, in the ſpring months, the rapes are of great value, as being not only a moſt ſucculent plant, that produces a great deal of milk, but they likewiſe fatten ſheep and lambs very expeditiouſly; ſo that no farmer, that is maſter of a proper ſoil in a convenient ſituation, ought to be without the enjoyment of this excellent food.

This ſeed agrees beſt with ſtiffiſh or moiſt loams, but it will grow well in dry loams. The management lies in ſowing them accordingly. If rape-ſeed is to be ſown in ſtiff, moiſt, or wettiſh loams, the ground ought to be ſowed betimes, even ſooner than *Auguſt*, for reducing its ſurly nature into fine looſe parts, by the month of *July*, when this ſeed ought to be ſown in the ſame, that the rape-roots may enjoy good part of

of the ſummer's hot ſeaſon for forcing them to take large hold of the earth, and get forward heads againſt the trying winter's froſty ſeaſons; by this the plants will meet with the beſt ſecurity againſt hard weather, and yet, for all ſuch a forward ſowing of this ſeed, that rape-ſeed, ſown in a dry loam in the month of *Auguſt*, is oftentimes as forward in its growth, as that ſown in a wet ſoil in *July*. Therefore whether rape-ſeed is to be ſown in *July* or *Auguſt*, in a ſtiff or drier looſe ſoil, the ground ought to be early and duly prepared, for the harrowing this ſeed in; and, as rape-ſeed is commonly ſown on the fallow ground, if it has not been ploughed up before *Auguſt*, do it now, either by broad-land ploughings or bouting it into ſingle bouts, or in what we call four-thoroughed lands, or in three or four bout-lands, or in broad ridge lands.

Theſe are all the beſt poſtures that land can lie in, that is of this ſtiff nature, for the firſt ploughing of it, in order to get it ſweet and fine; for it cannot be too fine for this ſmall ſeed; becauſe, in caſe a perſon was to attempt the getting a full crop of rapes in a ſtiff, ſour, clotty ſoil, if a great deal of the ſeed is not buried ſo as never to grow, the plants will be the longer enlarging their roots, and getting a flouriſhing head againſt winter; and then, perhaps, when they

are to be fed, there are only half plants or rapes; and what a ſtunted crop of rapes, or any other vegetable, yields, a farmer knows by the loſs he ſuſtains by his bad huſbandry; but this ſeed is not always ſown in tilth grounds; for, where the land is of a ſhortiſh, dry nature, it is oftentimes ſown on oat, or pea, or wheat, or barley, or bean ſtubble on one ploughing only, and harrowing in the ſeed after harveſt; and, when the weather proves propitious, there are many good crops of rapes got this way.

If the land is an intire, a gravelly, or a ſandy loam, if it is well ploughed, and well dunged, it may be made to become a good crop of cole or rapes; but when ſuch ground is to be ſown with this ſeed, ſpecial regard ought to be had to the proper time, leſt time, labour, ſeed and other expence, be moſt of them loſt. Now if a perſon has a mind to get a *Chiltern* incloſed field take with cole or rape, and to ſtand throughout the winter in a right order or growth, he muſt not ſow this ſeed till the middle of *Auguſt*; for if he does, the young crop is in great danger of running into ſeedy heads before the winter; and then the ſtalks will get hard and dry, and, in ſhort, be neither fit for cows nor ſheep, nor hardly any thing elſe.

Hence it is that cole or rape-ſeed may be ſaid to be ſown at ſeveral times in the year, viz.

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In tilth clayey grounds, as I ſaid, the latter end of *June*, and in dry tilth loamy grounds in *July*, are the chief times for ſowing cole-ſeed in fields; but about *Watford*, *Rickmanſworth*, and other adjacent parts in *Hertfordſhire*, the ſuckling farmers, or thoſe who ſuckle houſe-lambs, take care to ſow ſome of their land with the puffin *Hampſhire* kid, or *Cobham*, hog-peas: for as theſe are a forward ſort, they ſow them to come off by an early opportunity for ploughing the ſame land, and ſowing with cole-ſeed in *Auguſt*, or in *September*, at fartheſt. Others ſow the blue boiling-pea, and the *Eſſex* white roading boiling-pea, for the ſame purpoſe. Thoſe indeed that ſow ormuts, maſters, hotſpur, and the great union peas, and other ſorts, ſelling them green in their pods, may certainly get them off much ſooner than any of theſe; but as they commonly grow in ſandy and gravelly earths, for getting them into an early order to ſet on crops of turnips, to draw to ſell, or to feed their ſheep with in winter, I have no more to ſay of them here, but proceed to obſerve, that though cole-ſeed is ſown ſo late as in *Auguſt* or *September*, after a pea-crop, or a barley or a wheat-crop, on one ploughing up of the ſame, and harrowing in the ſeed; yet ſo it happens, that a good crop of cole, by theſe means, is often got, to the great advantage of the owner; I ſay, to his great advantage, be-

cauſe ſuch later-ſown cole-ſeed may produce a crop that will anſwer to as much profit as any early crop; for when the firſt crop of cole is eaten off, that was ſown in *June* or *July*, this laſt will come into uſe in *April* and *May*, and ſerve to feed cows, ſheep, lambs, deer, &c. in the ſcarce time of hay and graſs; which too often then happens to be the farmer's want, by having expended his dry meat, before the graſs gets head enough to become a ſufficient food. And it is alſo on this account that ſome ſow cole-ſeed in *February* and *March*; ſo that this herb is now become ſuch a field-plant, that it may be truly ſaid to be one of the moſt ſerviceable ſort growing in fields: and it is my real opinion, that as cole-ſeed is every year more and more ſown, it will, in a great degree, in time, ſupplant the turnip; becauſe it is moſt certain, that the colewort or rape will produce more and ſweeter milk than the turnip, if given to the beaſt before it is too old and rank; nor is it ſo liable to choak a cow or ſheep that eats it, as a turnip is. Indeed, as to the hoving quality, I muſt own, it is rather more apt to do the beaſt miſchief than the turnip-leaf. No green vegetable produces more milk nor fats ſheep and bullocks ſooner, and that in the ſevereſt cold winter or ſpring-weather, than cole or kale; only particular care muſt be had to their hoving, which all cattle are very ſubject to

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that feed on it. In a word, all theſe incloſed ſtubble fields, whoſe ſoils are in good heart, and of the ſtiff ſort, as ſoon as harveſt is home, or in *September*, may be plowed up and ſowed with this excellent ſeed, as it is done of late in our weſtern parts of *Hertfordſhire*, chiefly for feeding our ſtore ewes and their lambs in *December*, *January*, and other ſucceeding months, when our turnips, and all other field-feeding vegetables are eaten up; by which the lives of multitudes of lambs may be preſerved, that otherways would die for want of milk, or other nouriſhing food, to enable them to reſiſt the chill of rains, the dampneſs of the earth, and the tempeſtuous nights that frequently happen, and prove fatal to numberleſs of theſe new yeaned creatures; for it is common for great rains and ſnows to fall in the lambing ſeaſon; and, when theſe happen to be extreme, we ſometimes loſe almoſt half the number of our lambs, for want of proper food enough to feed the ewes, and breed milk, which this moſt ſucculent plant will do beyond all others. It is alſo by the help of this cole, kale or rape, that the ſuckling of calves may be carried on in the greateſt perfection; and that when the farmer is not only deprived of all other field ſubſiſtence, but where even grains, malt duſt, or any thing elſe cannot be got, and this by only the help of hay and ſtraw, and this juicy plant. This is

one example, among many, that diſcovers the ignorance and bigotry of our *Britiſh* farmers, who, though they have often heard of the improvement of field coleworts for more than forty years, yet would never be brought to ſow the ſeed in our *Chiltern* country, till within theſe very few years paſt, and that by means of only ocular demonſtration of a neighbour's ſucceſs, which ſometimes prevails over their obſtinacy, when nothing elſe can.

Theſe that were ſown in *July* or *Auguſt*, or *September*, may be fed 'till the beginning of *May*, with ſheep, cows, or bulls, and the ſame land fallowed directly for turnips or wheat. Theſe afford the farmer a vaſt opportunity of profit, for this, like rye, may be fed in the ſpring, when graſs and green corn cannot; but the cole or rape exceeds the rye, in that it may be fed earlier in ſnows and near as late, for theſe will ſuffer themſelves to be eat down two or three times, and quickly recover again, which cannot ſo well be ſaid of rye. The roots of theſe, being of the cabbage kind, draw very much nouriſhment from a rich ground, that forces them on, and gives them a new head in a little time, which again returns the dung and ſtale of the ſheep, to the great enrichment of the land and profit of the owner, who by this means may keep his money at home, which otherwiſe

otherwiſe muſt be expended in dung, ſoot, aſhes, horn-ſhavings, rags, and other chargeable diſtant dreſſings, that are not ſo good and natural to the land as this of ſheep. The months of *July*, *Auguſt*, *September*, are the propereſt times in the whole year for ſowing cole-ſeed.

This moſt valuable plant has but a few years paſt become common in ſome of our fields, and now is known but in few parts under the management I am going to ſhew. It is not only profitable for the oil the ſeed produces, but by conſequence it muſt be more and more in requeſt for improving low, moraſſy, and fenny grounds, by feeding cows, ſheep, and other creatures with it in hard weather, when no other meat can be had abroad; and it is on this account, that they ſow cole-ſeed about *Weſt-Hyde*, near *Rickmanſworth*, and other places, for the ewes that ſuckle houſe lambs, who even in ſnowy ſeaſons can come at their tall ſucculent heads, when turnips, raygraſs, clover, and all other green vegetables are under cover. It breeds a great deal of milk in a little time, both in ſheep, and cows, and will bear feeding down more than once. At this place they ſow one buſhel of cole-ſeed on ten acres, which they commonly harrow in on one ploughing, as ſoon as the forward Puffin pea is carried off the ground. But

about *Sax Mundum*, in *Suffolk*, and ſome other parts, they put the ſeed to no other uſe than making oil with it. Another advantage belonging to this ſerviceable plant, is, that in caſe your turnips miſs taking, you may, if the ground is proper for it, ſow it with cole-ſeed. In our high broad-land loams in *Hertfordſhire*, after the laſt ploughing, we harrow twice or thrice, one way firſt, then ſow the ſeed, and harrow it only once in a place croſs-wiſe: But in ridge, or two or four bout lands, croſs harrowing won't anſwer. This ſeed muſt not be ſown too thick where it is not intended to be hoed: But if you do intend to hoe it (which is the better way) then the thicker you ſow it, the ſurer the crop. The roots of this plant, as they draw the earth very much, it forces on, and gives the ſtalks a new head in a little time, and which, as they are greedily eaten by cattle, is quickly returned again in dung and urine, to the great enrichment of the land; by which the owner is enabled to lay out his money in other neceſſary incidents, ſince the great coſt of manures is here in a great meaſure ſupplied by ſheep, cows, *&c.* But it is not proper to let cows feed on them in the open field, becauſe they are apt to pull them up by their roots; in which caſe, the way is to cut off their heads,

and

and give the cows them in another field, or under covert, and that not in too great abundance, leſt it hoves and kills them; beſides which ill property, when the colewort is got old, it makes the milk rankiſh. On the contrary, the virtues of rapes or coleworts are, that they are excellent boiling herbs in froſty ſeaſons, quickly fatten cows and ſheep, and very opportunely yield a ſubſiſtence for cattle after turnips are gone. They cauſe plenty of milk, and are a very agreeable wholeſome food for hogs, rabbits, the great geeſe, ducks, pheaſants, and ſeveral other creatures, who greedily feed on their juicy pleaſant leaves. If the cle, or kale, or rape, is like to be a full thick crop, it may be fed at times in *January*, *February*, and *March*, in caſe the ſame ground is deſigned to be ſown with wheat at next *Michaelmas*, becauſe in *April* the fallow ſeaſon ſhould begin for the field to be ploughed the firſt time; and when the cole grows into ſuch a plentiful crop that it kills the weeds, and hollows and fines the earth, there is a ſecond advantage that may be enjoyed from it. Give the land one or two ploughings, and harrow in turnip-ſeed: Thus, if the ground is in good heart, it need not be dunged, for then it will do without any manure, and return an early crop of turnips, that may be fed time enough to ſow wheat on

the ſame. But if the cole is like to be a ſcanty thin crop, it is commonly fed off by *Allhallontide*, or the latter end of *November*, in order to prepare the ſame ground by ſeveral ploughings for ſowing it with barley the ſpring following. Where the land is not too wet, ſome have ventured to turn in and fat bullocks upon the cole heads, with hay conſtantly by them; but here they are apt to tread them down and ſpoil many, and ſometimes get hoved, to the endangering of their lives. But ſheep will fat on them more ſafely, yet not without hazarding their ſafety. Of this ſort, the ſuckling ewes are the leaſt expoſed to this misfortune. Coleworts will do well on thoſe clayey wettiſh loams, where turnips muſt not be allowed to grow, becauſe their broad round roots leave holes behind them, and let in the water to the ſouring of the ground, and ſpoiling it for ſucceeding crops of corn.

In *Scotland*, ſome think that neither coleworts, turnips, nor carrots, will over-ſtand the ſeverity of extreme cold winters. In anſwer to which, I will begin with the objection as to the coleworts. Rapes, or cole, or coleworts are ſynonymous terms for one and the ſame vegetable; yet confound the notion of many perſons in the judgment of it; for my part, I know of no difference in the ſpecies of them.

If

If one aſk at a *London* ſeed-ſhop for either cole or rape-ſeed, it is one and the ſame; ſo is the herb, whether called cole or rape; which is a very ſucculent or juicy plant, and therefore more productive of milk in beaſts, than either turnips, carrots, or any other ſort of root or herb that commonly grow in fields. It is on this account that moſt of the plough-farmers, for about twenty miles round *London*, who ſuckle houſe-lambs, and keep milch-cows, ſow this ſeed; for the high-growing colewort will become an excellent food in froſty and ſnowy ſeaſons, when turnips, and all kinds of graſs, are covered with ſnow, and produce ſuch quantities of milk, as nouriſhes and fats their houſe-lambs with great expedition, for an early and profitable market. But in *Lincolnſhire*, and in the iſle of *Ely* in *Cambridgeſhire*, and in ſome other parts, they ſow rape-ſeed, in order to obtain full crops of this herb, for feeding and fattening their large poll wether-ſheep: which it accordingly does; inſomuch that from theſe places many thouſands of cole-fed ſheep are driven up to *London* early in the ſpring; and ſo early, that by this means they commonly get a better price at this time of year, than in after and later ſeaſons. Hence it is, that our chiltern, and other butchers, keep their fatting ſheep back, from ſending them to be ſold in *Smithfield*; ſaying,

ſaying, Let the fen cole-ſheep be ſold, and then we ſhould meet with the better market for ours. Not but that we ſow great quantities of cole-ſeed of late, in our chiltern country, in clayey loamy, and even in gravelly loamy grounds, whether they lie dry or wet. But it is paſt contradiction, that cole thrives better in wet than in dry lands: And, for the better explanation of this, I ſhall be ſomewhat particular in writing of the ſeveral ſorts of ſoils cole-ſeed may be ſown in to advantage; and firſt of

Sowing Cole-ſeed in clayey Ground.

There are ſeveral ſeaſons in the year that admit of ſowing cole-ſeed, according to the nature of the land, and the uſes it is to be put to. If the land is of the clayey, or very ſtiff loamy ſort, and lies wettiſh, as moſt of this ſort of ſoil does, it muſt certainly require the more ploughings to bring it into a fine tilth; and a fine tilth is indiſpenſably neceſſary to be prepared and got ready for ſowing this ſeed, whether it be in fen, vale, marſh, or chiltern grounds; for this ſeed, being about the bigneſs of turnip-ſeed, is commonly harrowed in, and not ploughed in; becauſe, if it is done in the laſt mode, it would be apt to be buried, and the crop loſt. But this is not all: The manner of ploughing clayey and ſtiff ſoils, preparatory for the reception of this ſeed, and the growth of

of its plants, is a matter of importance; for, without a knowledge of this prime work, the ſeed, labour and expence, may be loſt. In fen, marſh, and vale-lands, they are forced to plough and lay their earth in broad or in narrow ridges, as the ground lies drier or wetter; if very wet, the ridge-lands muſt be laid the higher, and ſhould be the narrower; and this is to be done with either the common foot-plough, the ſwing-plough, the draught-plough, or the foot-turn wreſt-plough, *&c.* generally in the length, and not in the croſs way of ploughing; for ſuch ridge-lands will not admit of any other way of performing it in right order. But where ground lies not too wet nor too dry, and yet is of a ſtiff nature, it is in many parts ploughed into four-bout lands, preparatory for harrowing cole-ſeed in the ſame; as I have ſeen done in ſome places in *Suffolk* and *Middleſex*. Now when ſuch ſorts of land are ploughed and dunged well, ſo that it lies pretty fine, then the latter end of *June*, or beginning of *July*, the ploughman, who is commonly the ſower of this ſeed, harrows it firſt twice in a place; and then proceeds to ſow about three or four pounds, or more of it, on one acre; and then gives it only one harrowing, and the work is done: But ſome will ſow half a peck on one acre of ground, for the better ſecurity of a full crop.

Dunging

Dunging and manuring land, for a crop of cole or rapes, is to be done before or after the cole-ſeed is ſown: If before, dung is a very agreeable dreſſing for nouriſhing a crop of rapes; if after, ſoot, or peat-aſhes, or clay-aſhes, or oil-cake powder, or any other pulverized fertile manure, will very well anſwer the end. If the dung is of the long ſort, it is very proper to plow it into the ground in *March* or *April*, that it may have time to rot and mix with the earth, againſt the time of ſowing the ſeed in *June*, *July*, or *Auguſt*. If it is ſhort rotten dung, it is beſt ploughed in at the laſt ploughing; for ſuch ſhort dung will mix with the earth at once, and is a very natural dreſſing to this ſort of plant in particular; becauſe a colewort being of the cabbage-kind, it employs a conſiderable quantity of earth to nouriſh its growth; and where a good parcel of dung is laid in to its aſſiſtance, this plant will grow very faſt into a large head of leaves, and thereby be the better enabled to reſiſt the ſeverity of a long froſty or wet winter. But notwithſtanding dung is ſo agreeable to the nouriſhment of a crop of coleworts, yet there is an inconveniency attending it; and ſuch an one, as oftentimes proves fatal to whole fields of rapes; for dung is well known to be a great breeder of flies and worms, and an incentive to the deſtructive ſlug, or naked ſnail;

and

and which are all enemies to a crop of rapes; becauſe while the rapes are in their tender infant growth, and when they have made their firſt two leaves, the ſlug (eſpecially if wet weather happens in the time) is very likely to attack and eat them up; and then, very probably, the whole field muſt be ploughed again, and another quantity of ſeed of this, or ſome other vegetable, be ſown to a farmer's great loſs. I have loſt whole fields of coleworts in a very few days, that were eaten up by the ſlug, or little naked ſnail, while they were in their firſt and infant growth. As no land can be too fat and rank for the growth of coleworts, ſo none can over-dung, or dreſs it too much, for the growth of this open-headed vegetable; and therefore new-broken up ground, made firſt fine, or any other rich moiſt ſoil, in chilterns, in fens, or in marſhes, cannot be too rich for bearing a crop of theſe plants; and which gives thoſe perſons, who are owners of ſuch ſoft ground, that lies near the ſalt water, a favourable opportunity to improve it to an high degree of profit, by ſowing it with this ſeed, where it will flouriſh in very large and high ſtalks and leaves.

It is true, that the moſt common way of ſowing cole-ſeed is, out of a man's hand, in the broad-caſt mode of ſowing it, without the aſſiſtance of any matter mix'd with it, to make

it

it ſpread the better, as Mr. *Worlidge* and others direct; for this ſeed is bigger-bodied than clover-ſeed; and if a perſon were to adviſe our countrymen to mix ſand, or other light earth, with it, for preventing it growing in cluſters, they would be apt to laugh at him. I never knew any of this or clover, or lucern, and ſome other ſmall ſeeds, ſown with any mixture, but intirely of themſelves; and moſt of our ploughmen are expert enough to ſow them ſo true, that the crop generally comes even; and this ſort of broad-caſt ſowing they perform not only on broad lands, but alſo on four-bout lands, and harrow-in the ſeed: Yet there is a way to get a crop of rapes by the drill-plough, which will ſow the ſeed in a regular manner in drills, at a foot diſtance, and cover it with mould, immediately after the ſeed is dropt out of the hopper; and thus become a dreſſing for nouriſhing the crop under all its growth. But this is not all the dreſſing that a drilled crop of rapes requires; for, beſides the mould that always falls in of itſelf, as ſoon as the ſeed is dropt into the earth, there is more to be added afterwards, when the *Dutch* hoe or horſe-break is employed in the interſpaces between the drills; which leads me to make obſervations on the ſame.

Either the *Dutch* hand-hoe or the horſe-break may be made uſe of: If the hoe is to

be

be employed, the rape-ſeed ſhould be drilled in drills at a foot aſunder: If the horſe-break is to be employed, the ſeed ſhould be drilled in drills at a foot and an half, or two feet aſunder: But whether the one or the other is employed, there muſt be two ſeveral hoeings, or two ſeveral breakings of the ground, between the drills, if their growth will admit of it, to kill weeds, and lay ſome mould on the roots of the rapes. But I ſhould have firſt ſaid, that if the rapes come too thick in the drills, there may as many be hoed up with the common pull-to hand-hoe, in their infant growth, as you think is neceſſary for giving thoſe rapes that remain behind, and are to ſtand for a crop, ſufficient room to be maintained in a fertile and large growth: For this new way of improving a crop of coleworts will turn to great advantage, if a conſiderable quantity of ground is ſown with them, and the climate will permit them to ſtand the winter *; becauſe theſe two new inſtruments are exceedingly well contrived for the purpoſe, not only for diſpatching a great deal of work in a little time, but for doing it in ſuch a manner as ſaves the expence of dreſſing. What a valuable inſtrument then muſt a right ſort of horſe-break be, when, by its being drawn along the intervals, it not only looſens the ground, and kills

* Relative to *Scotland*. EDITOR.

kills the weeds, but at the ſame time lays ſuch a quantity of mould over the roots of the rapes, that as the autumn rains waſh down the ſalts of ſuch earth on them, they will force on both a very quick, and a very large growth of the coleworts! Here you ſee how neceſſary a three wheel drill plough, an horſe-break, and a *Dutch* hand-hoe, will be for ſowing marſh or moory ground with cole or lucern-ſeed; I ſay, neceſſary, becauſe this piece of huſbandry may cauſe ſuch a ſoft ſoil to pay you as much, or more, than the drieſt ground. But where the drill-plough, the horſe-break, and *Dutch* hand-hoe, are unknown, the cole-ſeed is ſown broad-caſt; and then ſome will hoe the crop at a proper height, with the common pull-to hand-hoe, in the ſame manner they do turnips. Others will not hoe them at all; but when the crop is to ſtand for ſeed, it is more than ordinary neceſſary to have coleworts hoed one way or other.

Chuſing right cole-ſeed is a material article; for without good ſeed a good crop cannot be depended upon. In *November* 1744, I was commiſſioned by a gentleman living in a diſtant country, to buy a buſhel of cole-ſeed. Now, as ſeveral places lay very convenient for this purpoſe, I bought this quantity at one of them; but I firſt tried more than one, becauſe I was offered a brown, and almoſt reddiſh-coloured cole-ſeed, for four ſhillings a buſhel,

but

but I rejected it as worthleſs; for ſuch ſeed was either decayed by long keeping, or houſed wet, and heated (or what we call burnt) in the mow; and then it is ſpoiled. At another place I was offered cole ſeed from three to five ſhillings a buſhel, and choſe the latter, as being of a jet-black ſhining colour, with a large heavy round body: This I bought, and am ſure, if no ill accident happens to it, it will give the gentleman ſatisfaction.

Rapes are now well known in ſeveral countries to become field, as formerly they were only a garden-ware; and indeed this is done with a great deal of reaſon, as the rapes ſerve to breed up young cattle, produce milk in cows, ewes, ſows, rabbets, *&c.* and fat dry beaſts with the greateſt expedition. Of late, therefore, rape-ſeed has been ſown in our chilterne country with great ſucceſs; but as this ſeed is for the moſt general part ſown in the broad-caſt form, and only harrowed into the ſurface of the earth, it is very much expoſed to the damage of dry weather, which is an utter enemy to the growth of this ſucculent plant; becauſe this, like the bean, requires much moiſture to perfect their large growth. And hence it is, as I ſaid, that in fenny, marſh, and vale-lands, they run into the biggeſt ſize, and proſper to that degree, as to yield abundance of ſeed.

BOOK XIII.

Of ſeveral CROPS *not commonly cultivated.*

Carrots.

A Perſon of note, in *Glouceſterſhire*, ſaid he could fatten an ox with carrots as much in one week, as common meat would do in four.

Potatoes.

This root is ſometimes cultivated by the help of fern: There was a bricklayer, that lived near *Box-Moor*, who was obſerved to get the largeſt and moſt potatoes of any of his neighbours in his private garden, chiefly by the uſe of fern; for, as he lived near ground that furniſhed him with plenty of this weed, he uſed to lay it in trenches, inſtead of ſtable-dung, believing it exceeded dung in its uſefulneſs, by furniſhing them all the ſummer with ſuch a moiſture, as ſupplied a watering-pot; for all fern is of ſuch a ſpungy nature, as makes it eaſily retain wets, when once it is thoroughly ſoaked by them; and ſo does old thatch.

Canary.

This ſeed, or grain, growing both in light and ſtiff lands, is generally ripe in *Auguſt*, and in *Kent*, is cut down three ſeveral ways; one is by

by the hook and hinks, a ſecond is by the ſickle or the reaping-hook, and a third by the ſcythe as it ſtands. When it is dry enough, they take and bind it up in ſheaves, or bundles, and after it has had its due ſweating in the mow, a man, if it yields well, will thraſh out three buſhels in a day. If the ground is in good heart, and a kind ſummer follows, one acre has produced three ſeam and a half, or what we call three quarters and a half. But on a particular acre there have grown four quarters, that have been ſold for ten pound a quarter: but ſince it has got cheaper, and now generally ſells for thirty or forty ſhillings a quarter. Its ſeed is an excellent ſort for feeding cage-birds, and making one of the whiteſt and beſt of oils for the limner's uſe. Its ſtraw is good for cows, but ſheep will not eat it; for horſes it is indifferent, and therefore cut it into chaff.

Weld.

A load has been had off one acre, and ſometimes a load cannot be got off ten. Twenty-eight bundles make one load, which, in the year 1738, was worth ten guineas; and, near *London*, they carry a load and a half in a waggon at once.

Saffron.

An acre commonly yields ten pounds weight, and ſometimes as much more, and ſold at deareſt for five pounds a pound weight; but at the cheapeſt for twenty or thirty ſhillings a pound.

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BOOK XIV.

Of the CULTURE *of* CLOVER.

CHAPTER I.

OF THE TIME OF SOWING.

THIS is one main article in the art of ſowing clover; for, if it is ſown too early, or too late, it may occaſion the loſs of the crop: for this reaſon no prudent farmer will ſow clover-ſeed between *Allhollantide* and the firſt of *March*; becauſe, if he does, he expoſes it to the damage of froſty weather, which oftentimes becomes fatal to the clover-ſeed ſown in that time. Hence it is, that many farmers conclude, that clover is moſtly killed by froſts, and not by the ſlugs; by reaſon when clover-ſeed is ſown too early, and the froſts meet it on the chip, or firſt infant ſprout, they generally deſtroy it, eſpecially in caſe the froſts are any thing violent. I re-

member that, in *March* 1741, the ſhop-keepers, who ſold clover-ſeed, ſaid, they hoped clover-ſeed would grow dearer than three pence *per* pound, as it was then at, becauſe they hoped the forward ſown ſeed, by the froſts that followed, would be deſtroyed; and on this account it is, that few farmers venture to ſow it before *March*, for even then it is not free of this ſort of danger. And it likewiſe may be killed by too late ſowing; for, if this ſeed is ſown in *April* and *May*, and a long ſeaſon of hot and dry weather ſucceeds, it may dry up the ſeedling ſhoot, and ſpoil the crop, eſpecially where clover-ſeed is rolled in; therefore the month of *March* is the moſt proper month of all others for ſowing clover-ſeed; and the more, for the *March* winds are commonly ſo ſharp and cold, as to hinder the appearance of ſlug, fly, or worm, at the ſurface of the ground, which gives the growing clover-ſeed a ſecurity of making its firſt ſprout free of their rapine. But it is likewiſe the moſt proper month of all others to ſow clover-ſeed in, becauſe barley, oats and peaſe, are more ſown than in any other month; and, as clover-ſeed, more than any other, is ſown among wheat, barley, oats, and peaſe, it is the beſt time of all others to ſow and propagate this excellent ſeed in the ſeveral manners I am going to ſhew:

CHAP. II.

OF THE CROPS WITH WHICH IT IS SOWN.

SOWING clover among wheat, in *March*, is put in practice, becauſe all tilth land, ſowed with wheat, is firſt prepared and brought into a poroſity or fineneſs for the reception and growth of the golden grain; and that the wheat crop may be a full one, ſuch ground is commonly dunged or folded upon, or otherwiſe dreſſed or is manured. When the land by ſeveral ploughings is thus prepared, and dreſſed beſides, for ſowing of wheat-ſeed in, it is the fitter to ſow with clover-ſeed in *March*, becauſe it, being in a clean hollow, rich condition, will preſently draw in the clover-ſeed that is ſown broad-caſt over it; for ſo ready is ſuch prepared earth to receive, nouriſh, and produce a good full crop of clover among the wheat, that ſome do nothing elſe but ſow it, and thus let it take its chance for growth, and it oftentimes hits ſo well as to grow into a full crop. But others take more pains to get a crop of clover among wheat; and, if they ſow this ſmall ſeed among wheat that lies in two-bout ſtitches or ridges, they, after ſowing the clover-ſeed broad-caſt, to the quantity of about ten or twelve pounds on each acre, employ the great, ſolid, wooden

roll, by drawing it acroſs the ridges of the wheat; and by this means they preſs down the ſeed into the earth, cloſe the ſurface, and very much ſecure the roots of the wheat and clover, againſt the prejudicial power of too much heat and drought. Others ſow clover ſeed over wheat, when it lies in broad-lands, and likewiſe roll all in for the ſame purpoſe. Others that ſow clover-ſeed among wheat that lies in broad-lands, will draw ſome buſhes, or haſle, or other rods between the teeth of the harrows; and, as ſoon as they have ſown the clover ſeed, will by drawing a pair of harrows ſo prepared over the wheat, raiſe earth enough to cover and hale the ſeed. Others, to anſwer this end, will draw buſhes through a hurdle, and afterwards draw the ſame hurdle over the new ſown clover-ſeed. In any of theſe forms clover-ſeed ſeldom ever fails of growing into a full crop among wheat, by reaſon the earth is in the richeſt condition for a wheat crop; and therefore a farmer may depend on having good ſucceſs this way, if accidents of weather do not hinder it. But, before I quit this article, I think myſelf neceſſarily obliged to take notice of one great inconveniency that attends the ſowing clover-ſeed among wheat; and that is, in caſe a hot ſummer is attended with frequent ſhowers of rain, the clover and wheat is apt to grow luxurious, to

that degree, that the clover being thick and long, ſhades the wheat-roots ſo much, and lodges ſo much water in it, as to cauſe the large ſtalks of ſuch wheat, with its heavy green ears, to fall down, and be laid before it is ripe, and then the conſequence ſometimes is the loſs of a valuable crop, in a great degree. However, where clover is ſown among wheat that grows in pooriſh ground, the danger is the leſs; and therefore I know that many farmers boldly venture to harrow clover-ſeed in among wheat in the manner I have before mentioned, where their land is of the gravelly, chalky, or ſandy ſort; I mean, where there is a mixture of loam enough among either of them, to make them be called a gravelly loam, a chalky loam, or a ſandy loam; for a naked gravel, chalk, or ſand, is an improper ſoil to ſow with clover-ſeed.

By the greateſt farmer with us, clover is ſeldom ſown amongſt his barley, becauſe of its rank growth in a wet ſummer, even to the endangering the miſcarriage and crippling of the crop; for that the barley is leſs able to withſtand its luxuriancy, than either the wheat or oat, and that for theſe reaſons—The ſtalk of barley is generally ſhorter than either of the other two, as being not ſo long jointed as the wheat or oat, which is viſible in particular at the upper knot of theſe ſtalks;

for

for upon examination, the higheſt joint of the wheat or oat is commonly found to be as long again as that of the barley; and therefore they are more out of the clover's power, by ſo much as they are higher, and have a greater potency to ſhade, cover, and retard its growth; this generally induces him to ſow his clover in *February*, on this wheat ſtitch, which being well dreſſed and in a fine tilth, often takes extraordinary well; this he feeds one year intirely, and the firſt part of the next ſummer, till he mows or feeds off the firſt head, when he ploughs it up two or three times, and gets either a crop of turnips, or wheat again; or eats it all the ſecond ſummer, ploughs it up in winter, and ſows it with barley the next ſpring. But of late he only lets it ſtand but one ſummer, as thinking the ground becomes ſour by feeding it two. Some ſow the clover on wheat in *April*.

Another, I knew, that ſowed his wheat ſtitches with clover in the ſpring, and for a trial, got a large bundle of buſhes tied faſt together, and by the end of the rope drew it up and down the ſtitches of half the field; this received the ſeed very well, but the other half, that he did nothing to after he ſowed it, had no effect.

When clover is to be ſown among barley, the management of ſowing it is different from that

of

of ſowing clover among wheat; for, after the barley is ſown and harrowed in, we ſow our clover broad-caſt, and harrow it in only once in a place, and it is done withal, till the barley is to be rolled, which commonly requires to be done in about a fortnight or three weeks time. This is the moſt general way of ſowing clover among barley, becauſe the harrow tines hale and cover the clover ſeed better at one harrowing, than more; for, if two were to be given it, it would be apt to bury this ſmall ſeed. Others refuſe this method of ſowing clover, and only ſow the clover-ſeed juſt before the barley is rolled, in order to keep the clover from being too luxuriant, and by that means getting ſuch dominion over the barley-crop, as to ſpoil or greatly damage it; which is often the caſe where clover is ſown with the barley, and a wet hot ſummer ſucceeds, eſpecially where the clover-ſeed is ſown in a rich ſoil; which misfortune is prevented by the late ſowing of clover-ſeed till the barley has firſt got high enough to become its maſter, and keep its growth in low order all the reſt of the ſummer.

This is a pretty ſure way to ſecure a barley-crop from this damage, becauſe as the clover-ſeed is ſown and only rolled upon the ſurface, it requires more time to take root, than when it is laid deeper by the harrow-tines; ſo that by late ſowing it,

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it, and only rolling the ſeed in, the barley-crop is never hurt by the clover; and, indeed, this is a matter that deſerves conſideration; for, ſuppoſe a poor farmer had moſt of his rent depending upon his barley-crop, and this crop ſhould be half loſt, merely by the means of his ſowing clover-ſeed when his barley ſeed is ſown; what a loſs muſt this be? I have known this very caſe befall a farmer in *Hertfordſhire*, who rented a very large farm, and ſowed, I believe, thirty acres of barley, moſtly with clover-ſeed, that by the frequent ſhowers of rain that followed the ſowing, brought on ſuch a rank growth of the clover-graſs, as made it deſtroy great part of the barley-crop; and, as the farmer was then but weak in pocket, it had like to have broke him.

But this is not altogether the ill conſequence of harrowing in clover-ſeed with the barley-ſeed. There is another attending it at harveſt, that is when the clover-graſs has got into a very rank growth, it is apt, after mowing, to retain dews or rains, to that degree, as to hinder the barley from drying; and, if barley is not got in dry, then in courſe there will a ſhort price attend its ſale at market.

To this may be added one more loſs that ſometimes happens by this very means to a barley crop, as when the clover grows ſo rank among it that

that it has acquired large ſtalks, and that ſuch large ſtalks by the bulkineſs of both the graſs and barley-crop cannot be got thorough dry, they are liable to damp the barley in the mow, cauſe it to look reddiſh, and ſometimes muſty withal; and then it very likely may be fitter to give ſwine, than make malt of, as has been the caſe of many farmers to my knowledge: and I muſt confeſs myſelf to have been overtaken in this manner; for where a crop of barley and clover is rank of growth, and a wet harveſt accompanies its mowing and getting in, the clover has further added to the misfortune, and has cauſed the grain to ſprout in the mow; and then, where there is much ſown, the loſs is the greater; for when it is in this condition, and barley ſells cheap, the malſter in courſe refuſes it, and then it often falls to the ſhare of fowls, horſes, or cows, or ſwine.

Wherefore I have this to propoſe, that it would be ſafer to ſow clover-ſeed in two different manners among barley, than to ſow it all one way; that is to ſay, if half a barley-crop had clover harrowed in with its ſeed, and the other half had clover rolled in when the barley has grown high enough for the purpoſe. In either form we commonly ſow ten or twelve pounds on each of land; not but that even three or four pounds of this ſmall ſeed are ſufficient to furniſh

one

one acre of ground with a plentiful crop of its graſs: but, to allow for accidents, there ought to be no leſs than ten or twelve pounds ſown. And to grudge ſeed, on this account, may prove the old proverb true, *Loſe a ſheep for a half-penny worth of tar.*

Barley-ſeed is aſſuredly the beſt *Lent*-grain to ſow clover-ſeed amongſt, becauſe, the ground having been under preparation for the reception of the barley, by ſeveral ploughings and a proper dreſſing, the clover-ſeed will the more eaſily and more certainly take the ground, than when it is ſown among oats, or peaſe, or beans; becauſe theſe three latter ſeeds have ſeldom above one ploughing beſtowed on them, and are ſown without any previous dreſſing, which gives the clover-ſeed the leſs chance of growing into a full crop of its graſs.

A farmer having a large crop of peaſe ready to cut with the long *Hertfordſhire* hook, as they grew promiſcuouſly; he went over the whole field, and ſowed about twelve pounds of clover-ſeed on each acre, and, by the hookers treading it in with their feet as they worked along, the ground, which became very hollow by the great cover of the crop of peaſe, received the ſeed ſo well, that, next ſummer, there appeared a famous crop of clover; for here the ſeed is pretty

ſafe

ſafe from both ſlug and fly at this time of the year, in ſuch a trodden piece of corn-land.

About *Watford*, where they pay twenty ſhillings *per* acre a year for their ploughed-land, they have ſuch a regard to the improvement of this noble graſs, that, after the barley is carried off, which the clover was ſowed amongſt, they get large quantities of *London* coal-aſhes, and lay them in a few large heaps in ſeveral parts of a great field in *September*; then in *October* they turn in thoſe ſheep, which a little before were put into their ſtubble-fields to fatten, and by this opportunity they continue feeding them 'till their turnips are ready, which compleats them for the butcher; then, about *Chriſtmas*, they ſow their aſhes on the clover, which is of great benefit to it.

This ſeed a farmer harrows in with his oats, without any pole a-croſs them, as being more ſure than rolling it in; becauſe the fly, froſt, ſlug, wet, winds, or ſun, have not that power to hurt it, when its enveloped in the earth, as when it is confined only to the bare ſurface, and nakedly expoſed to the ſeveral devaſtations; beſides, as there is only one ploughing to the culture of this grain, the ſour, ſurly quality of the ground has leſs power to hurt the ſeed when it is harrowed in with the

the oats, than when it is only ſowed and rolled in.

If a crop of clover is intended to be got with barley, then it muſt be ſown a fortnight, three weeks, or a month after the grain, and only rolled in, as I have before hinted, which generally prevents this damage: But here I publiſh the ſeveral methods, that the reader may make his better choice.

If a crop of clover is deſigned to be had after peas are got off, then when the peas are harrowed, clover ſeed ſhould be alſo harrowed at the ſame time; but here he runs a riſque, for if the peas are a great crop, it is a wonder if the clover is not killed by their cover; but if ſome of it takes, it may be thickened, by ſowing a few pounds on an acre, juſt before the peas are hooked or mowed, which by the thread of the workmen, will be forced into the hollow earth, and very likely become a good crop.

So alſo may clover be harrowed or rolled in with rye, either in *Auguſt* or the ſpring, and become a good crop, without damaging this grain, whoſe ſtalks growing very high, is the leſs ſubject to the clover's fury.

Not but that there is a way to come by a good crop of clover, trefoil, or ray-graſs, though the ſeed is ſown on a poor ground, and that

that is this: If artificial graſs-ſeeds are ſown on a poor ground that is firſt ploughed and made fine, they may take ſo well as to cover almoſt all the land, and grow into a thick crop the following year; but as it is not reaſonable to expect there will be a rank growth of ſuch artificial graſs, without any other help on ſuch poor ground, a full dreſſing or manure of ſoot, malt-duſt, lime, or coal, peat, or wood-aſhes, or ſome ſuch ſort of aſſiſtance ought to be put on the graſs-crop in *January*, or *February* at farthеſt; and then, if a wettiſh time ſucceeds the ſowing of ſuch manure, there will, in courſe, be a large crop produced of ſuch artificial graſs; as is ſometimes proved, but not very commonly, becauſe farmers find it beſt anſwers their intereſt, when they ſow their artificial graſs-ſeeds on ground dreſſed on purpoſe for a barley, wheat, or oat-crop, for that one ſuch dreſſing very well anſwers both ends; that is, to produce both a full crop of corn and of graſs, and this for two years together where the land is naturally good; but, if it is naturally poor, then one year will be long enough. Indeed, in ſome parts, they let a crop of one or other, or all together, of theſe artificial graſſes lie three years in all in gravelly loams; but then they take care to manure the whole crop the ſecond year for making it hold out ſo long in good order, and this eſpecially is done

done on dry grounds, that will bear the feet of cattle without their ſtolching it; and where ſuch artificial graſs is more than ordinary wanted, as the caſe is with ſeveral of thoſe farmers who live between *Hempſted* and *Watford* in *Hertfordſhire*. But, in this management of artificial graſs-ſeeds among oats, the oats ought not to be ſown quite ſo thick as when they are ſown alone; becauſe too much cover ſometimes kills the ſprouting infant graſs, which is the fault of, and what diſcourages many farmers from ſowing clover and other artificial graſſes among peaſe, becauſe their great cover deſtroys oftentimes more than nouriſhes a crop of young graſs; and ſo does any other corn-crop in a leſſer degree that grows very thick, ſo as to choak the clover, trefoil, or ray-graſs, while it is in its *embryo* condition of growth; and therefore four inſtead of five buſhels of white oats are enough to be ſown on one acre, when any or all theſe graſſes are ſown among them; and then there will be room enough for corn and graſs to grow and flouriſh. The ſame care ought to be regarded, when graſs-ſeeds are ſown among black oats; where four buſhels of theſe are to be ſown on one acre, there ſhould be only three buſhels and a half employed, that the young graſs may not be deſtroyed by too cloſe a cover of the oats;

and although it may be ſaid, that ſuch artificial graſs draws ſo much of the goodneſs of the ground, as to rob, in ſome degree, the oat-crop; yet it may be alſo ſaid, that the ſhade and moiſture, which an artificial graſs yields to the roots of the oats, will compenſate for all damage that may happen on this account.——It is not too late to ſow clover, ſainfoine, trefoil, or ray-graſs ſeed in any part of *April*; for it may be done very well among barley or oats, and where a perſon thinks fit to venture his graſs-ſeed. It may likewiſe be done among peaſe, as the tender late-ſown puffin-pea, the blue pea, or the *Eſſex* roading-pea, *&c.* There are ſeveral ways, as I have remarked before, to ſow clover or other artificial graſs-ſeeds; but *April*, in particular, gives *Chiltern* farmers a good opportunity to ſow them by the nine feet long wooden roll, by reaſon this roll is commonly employed then in the rolling of that barley and black oats which were ſown in *March*, and for ſowing either clover, trefoil, ray-graſs, ſeed, *&c.* among theſe grains; the way is, juſt before the roll is to be uſed, to ſow the graſs-ſeed twice in a place, and then immediately draw the roll all over that, and the barley or oats only once in a place, croſs the broad-lands; for we ſeldom ever draw the

roll

roll twice in a place, unleſs there be an extraordinary occaſion for ſo doing, as when the ground lies more clotty than ordinary; and, if a favourable wet time happens afterwards in due ſeaſon, there may an excellent crop of ſuch artificial graſs appear, when the barley or oats are mowed off; but, if a long dry time follow, it may dry up the ſprouting ſeed and kill the crop, becauſe this ſuperficial way of ſowing graſs-ſeeds very much expoſes them to this misfortune. However, there is no way, ſtrictly ſpeaking, that artificial graſs-ſeed ſown at any time, or in any ſhape, is free of danger of being ſpoiled or damaged: If it is harrowed in with corn in *February* or *March*, the froſts may overtake it and ruin its growth; or, if it is buſh-harrowed in, its fate may be the ſame; or whether harrowed in, or rolled in, the fly, or ſlug, may devour it, before it has got ſtrength enough to reſiſt their rapine. However, the ſowing of clover, trefoil, or ray-graſs, by the roll, in *May*, is the laſt reſource; and, therefore, all thoſe, who would enjoy a crop of any or all of theſe moſt ſerviceable artificial graſſes ought to ſow their ſeed, at fartheſt, in *April* by roll; which indeed is the beſt time of all others, to ſow any of theſe ſeeds among barley in particular, where a farmer has reaſon to fear, that, by the rankneſs or richneſs

of his ground, their graſs would grow ſo luxuriant as to choak or cripple the barley-crop; as the caſe has often happened to many, when a hot wet ſummer ſucceeds the ſowing of it in a rich ſoil; but, by this way of rolling the graſs-ſeed in at this time of the year, he is intirely free from this ſort of damage, becauſe the barley-ſeed, being harrowed in ſo long before, has the opportunity of acquiring ſo forward a growth, as to be able to keep the clover under, and prevent any ſuch misfortune.——Sainfoine ſeed alſo may be ſowed in *April* among barley or white oats, though it is moſt commonly done in *March*. If it is to be ſown among oats, the ſame ground ſhould be duly prepared for it, by two or three winter's ploughings to get it into a fine tilth; for, unleſs this piece of forward huſbandry is well obſerved, there is no great likelihood of obtaining a full crop of ſainfoine, becauſe this is a large ſeed, that cannot be well covered, unleſs the earth is in a fine hollow condition, for admitting the harrow-tines to enter deep enough for the purpoſe; yet, notwithſtanding ſuch precaution is duly obſerved of preparing the ground by ſeveral ploughings, by the better ſort of farmers, there are others of the worſe ſort, who careleſly venture to ſow this or other graſs-ſeeds on rough tilths, and miſs their crop by ſo doing.

A certain

A certain farmer, who rented a large farm, in *Hempſtead* pariſh, and had no common, fit to feed ſheep on, is afraid to ſow oats in thoſe of his incloſed fields, whoſe ſoils are loamy clays, becauſe he is of opinion, they draw the heart of the ground out ſo much, that, if a crop of wheat next ſucceeds them, it will be a poor one. He, therefore, generally contrives to have a crop of clover and trefoil grow together in a mixture, for feeding and fattening his graſs-lambs, believing, that, after ſuch a crop of artificial graſſes has been fed off, with ewes and their lambs, he ſhall have a good crop of wheat after it.—The main root of clover is a tap-root, and all the tap-roots love to follow an horizontal or ſpreading root, as all corn roots are; becauſe each ſort gets its living in the ground, in different ſtrata's of earth; yet, I dare not ſay that artificial graſs does not hurt corn, or corn that, when they grow together, as Mr. *Bradley* has aſſerted; no, for graſs may hurt corn, and corn graſs, as in the caſes of barley and peaſe. But this I have to ſay, that all tap-roots have the advantage of being much nouriſhed by the waſhings of the ſurface that by long and great rains are forced down to them, which is one main reaſon why clover yields the farmer two or three mowings in one ſummer. Another author

remarks, that clover is very apt to fail in a dry ſummer: This may be, and ſo may all other vegetables in ſome degree; but it is well known that clover has grown into great crops, when natural graſs has been burnt up, and this not only from the benefit of its tap-roots, but alſo from the aſſiſtance of coal-aſhes, or ſoot; which, if ſown on a firſt or ſecond year's crop of clover, it will bring the clover under ſuch a fertile forward growth, as to ſecure it very much againſt droughts, though no rain fall from *Lady-day* to *Mid-may*. But this laſt author, I found, in my travels, lived in a country, where they were no better acquainted with wood-ſoot, than to ſell it only to dyers; and, for coal-ſoot, I ſuppoſe, they would think nine pence thrown away, if they were to give a ſhilling for a buſhel of it. Whereas the *Hertfordſhire* farmers, even thoſe who live thirty miles diſtant from *London*, think it good huſbandry, to give ten, eleven, and twelve pence for a ſingle buſhel of coal-ſoot, to lay on clover, ſainfoine, wheat, barley, natural graſs, *&c.* and yet are ſure they have not all neat ſoot brought them for ſo great a price.—If dung is laid over a ſecond year's crop of clover, it ought to be done in a very thin manner; for, if it is laid in clots, it will be apt to ſmother part of it, and then, if the clover is mowed, it will rake

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up with the hay. But this fault would prove the greater, if dung is thus laid on new-ſown clover (as is too often done) for then ſuch young clover would be the ſooner ſmothered; but, if ſtable or yard-dung is laid over any clover, in a light thin manner, it will greatly nouriſh it.

CHAP. III.

OE THE GROWTH OF CLOVER.

IT commonly comes up in a week's time, if the weather is favourable, and then it appears with two leaves and its ſeed on its head; theſe all rot away in about three weeks time, and then the ſpear, which ſhot from the middle between the two firſt leaves, opens itſelf into three new leaves, which ſtand all good. Old ſeed is longer taking root, and its leaves bitterer than thoſe from new ſeed.

CHAP. IV.

OF MAKING CLOVER HAY.

THE latter end of *May*, or the beginning of *June*; clover is fit for mowing, and known by its being full knotted and red.

headed; and it is then you ſhould begin this work; for there is a criſis of time to be obſerved in this, as well as for natural graſſes. If you mow it too ſoon, it will ſhrink and loſe in quantity; and, if it ſtands too long, you will be deprived of its beſt quality, the ſap; and then conſequently it will be very coarſe, and want much of its due value. My way of making it is thus: After it has lain a day or two in the ſwarths as it was mown, the next time I remove its firſt ſituation, by turning the ſwarths, and letting it lie ſo another day; then I put it in graſs cocks in rows, that the ground between them may be regularly raked; then I afterwards turn them with a fork topſy-turvy twice a day, 'till the hay is intirely made. By this method you will have it in its due perfection of colour and ſweetneſs with the leaves on; but you muſt not expect this latter benefit, if you make this hay after the common way of throwing and ſpreading it ſeveral times, as is done in making the natural ſort; becauſe then it would be deprived of its leafy and ſecond beſt principal part.

In the next place, when you inn it, and it ſhould happen to be wet weather, or that you miſtruſt a dampneſs in it, put a tub, baſket, or hollow ſquare made of four narrow boards four or ſix feet long nailed together, and placed in

the

the middle of the cock, or ſtack of hay abroad, or in the mow in the barn, pulling it up higher as the cock, ſtack, or mow fills in; and thus you will not only prevent its firing, but keep it ſweet; and indeed it is a good way to uſe this method always, let the hay be ever ſo dry, becauſe it gives an evacuation to all moiſture, and tends very much to the preſervation of its green colour. If you intend the ſecond crop for ſeed, do not feed it after the firſt mowing.

CHAP. V.

OF THE APPLICATION OF THE CROP.

A CROP of clover, which may be, and often is, of more worth to a farmer, than either a wheat, barley or oat-crop; which I pretend to make appear, by reckoning what a full crop of clover-graſs was worth in the year 1743, and a crop of wheat, or a crop of barley, or oats, or peaſe was worth at that time. Wheat was ſold at *Michaelmas* for leſs than three ſhillings a buſhel; that which would fetch fourteen ſhillings a load, as we call *five buſhel* in *Hertfordſhire*, muſt be the very beſt of wheat; and, I will ſuppoſe, that there were gotten off each acre of land thirty buſhels one acre with another:

another: Then the amount of ſuch an acre of wheat would be at that price four pounds four ſhillings. But, after ploughings, dreſſings, and rent, with other incident charges, are deducted out of that ſum, there will hardly be twenty ſhillings left for the farmer. Whereas a full crop of clover-graſs will produce three loads of hay, and, as each load is worth twenty-five ſhillings, the whole firſt crop will amount to three pounds fifteen ſhillings, beſides a ſecond and third crop of the ſame graſs the ſame ſummer, if it happens to be a hot rainy one. But I will reckon no more than the money for the firſt crop, the laſt one or two will be more than ſufficient to defray rent and all other charges of this clover-crop; and then there will remain clear, into the farmer's pocket, the ſum of three pounds fifteen ſhillings for one acre of clover-graſs got off the ground in a fallow-ſeaſon this year 1743, which was one of the moſt propitious ſummers, that ever I knew, for cauſing the biggeſt crops of clover; for I had, it was judged, as much, or very near as much clover-hay at a ſecond mowing, as I had at the firſt mowing: Five or ſix loads in all off one acre at twice, and ſo in proportion for a crop of clover after other grain, for this clover-crop, here mentioned, followed an oat-crop that the ſeed was ſown among.

Clover,

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Clover-graſs, in full bite, produces a great deal of milk; inſomuch, that an acre of this, well planted, is reckoned to feed as many cows as two or three of meadow; but this has its faults, for, at beſt, it makes but a coarſe butter and cheeſe of a diſagreeable taſte, and worſe if it ſtands too long before it is fed; therefore it is beſt ſown with ray-graſs and trefoil, which will make a better butter, and be a ſafer feed than clover alone.

All *July*, 1739, a neighbour of mine drove his hogs a mile diſtant from his houſe, every day, into his clover field, under the conſtant care of a boy, who, about twelve of the clock, had them to a pond that lay a pretty way off the field, as having no water there, on which with a ſupper of waſh and grains, they throve and grew a-pace.

Some ſay, that if a farmer does not ſow clover, he cannot pay his rent, as times now go in the farming buſineſs; meaning that as many large downs in the weſt, and commons elſewhere, are of late ploughed up, and converted into arable land, and by the new improvement of huſbandry in many places carried on with great ſucceſs, grain is now become very plenty and cheap, and like to continue ſo. The ſowing of clover, and other artificial graſſes, is abſolutely neceſſary to be done, where the ſoil and conveniency will admit

admit of it, that a farmer may be able thereby to feed his cattle with it, and ſave his natural hay to ſell, and his oats, peaſe and beans, in a great degree, and do his land a vaſt ſervice, and all this for a trifling expence. For, firſt, as ten pound weight of this ſeed ſows one acre, and that at a common coſt, amounts but to three ſhillings and four pence, at a groat a pound, there is hardly any farmer that cannot afford to ſow his land with ſuch cheap ſeed. Secondly, he may, by this means, employ his fallow ground, which otherwiſe would lie idle; ſo that a crop of clover, got here, may be juſtly reckoned almoſt a clear profit. Thirdly, Such a full crop of clover will laſt two years very well, if encouraged once in that time, with the aſſiſtance of dung, ſoot, or aſhes. Fourthly, This rare graſs, when it covers all the ground, never fails of bettering and improving the land it grows on to that degree, that it is in ſome parts, where I have travelled, called the mother of corn, becauſe it kills weeds, prevents exhalations, hollows the earth, and leaves ſo many large long roots behind it, as to become a ſort of dreſſing to it. With the help of clover graſs, the ſuckling of houſe-lambs is carried on moſt part of the year within twenty miles of *London*, in ſummer, by feeding ewes with it in the field; in winter, by feeding them under cover with its hay. With this

this graſs, and its hay, our plough and cart horſes are ſubſiſted the greateſt part of the year, to the ſaving of our natural hay and corn; for clover alone, when fed by them in the field, will ſupport them under their work, and the ſame in the ſtable, when fed by its hay out of the rack. Our wether ſheep and graſs-lambs we fat with it in the field, and our ſtore-ſheep are ſupported moſt part of the ſummer by its feed, and thereby enabled to dreſs their ground with their dung and urine in the fold, to the ſaving of many pounds to a large farmer, who muſt otherwiſe be at a great expence to buy manure to ſupply this fold dreſſing. With clover ſeveral ingenious *Chiltern* farmers, whoſe wives, or maid-ſervants, are capable of managing a dairy of this kind, carry on the buſineſs of making butter and cheeſe from this graſs, which formerly was thought impoſſible, becauſe of its hoving quality, and the rank taſte it uſed to give the butter and cheeſe made of it. But now ſeveral farmers have both butter and cheeſe made of it in that perfection, that many buyers of them cannot diſtinguiſh either from that butter and cheeſe made from ſome ſorts of natural graſs.

But beſides the great conveniency of enjoying clover crops, before mentioned, I have further to obſerve, that, with this graſs and its hay, there are many oxen, cows, and calves, fatted: for this

this artificial graſs is of a very fattening nature; inſomuch that where a full quantity of it is enjoyed by thoſe dry beaſts, that are to be fatted by it; it will do it compleatly, with the help of very little elſe: I mean, after they have been fed all, or great part of the ſummer, in clover, in winter its hay, and a few oats now and then, will effectually fat any of the large horned kind. Clover alſo, either green or dry, will cauſe abundance of milk in cows; and where they can be fed in the day time on clover in the field, and in the night time on natural graſs, as is my uſual way, the milk will be very ſweet, and ſerve for any manner of uſe. And I do further aver, that where a perſon keeps a right ſort of hogs for this purpoſe, a field of clover will prove almoſt an intire ſubſiſtence for them the greateſt part of the ſummer, provided the ſtore-hogs can enjoy it in freſh parcels; for if they, or any other beaſt, are kept ſo long on clover, as to ſtain it much by their dung, ſtale, and feet, it will have a contrary effect, even the cauſing them to pine away, inſtead of fatting; which leads me to obſerve further of clover-graſs, by the want of it in vale-lands.

This artificial graſs, above all others, is the *Chiltern* farmer's friend, and the vale farmer's enemy. The vale-graſs turf is certainly the richeſt turf of all others, becauſe its graſs and hay,

hay, for the moſt part, will alone fat an ox or a horſe; when that in the *Chiltern* country will not, without the help of corn beſides; and therefore before clover got footing into *England*, which it did about eighty years ago, the graſs farms of vales were the beſt farms in the kingdom, becauſe they lett for the moſt rent of all others. But ſince clover ſeed has of late been ſown by moſt or all *Chiltern* farmers, the value of ſuch vale-graſs farms has declined; and the more, by reaſon where their vale ridge-lands are of a ſtiffiſh ſoil, and low watery ſituation, as moſt of them are, they will not anſwer being ſown with clover.

An author ſays, that horſes ſhould be ſtaked to a certain length, to prevent the miſchief that might otherwiſe accrue, from the rank feeding of the clover. This is a monſtrous miſtake indeed, for no man, I believe, ever knew a horſe ſuffer this way; it is true, we ſometimes bleed them two or three days after they are turned in, to prevent a plethory, and ſo we do ſometimes, if in natural graſs: but if ever he had been an owner of cows or ſheep, fed in clover, he would have fixed ſome ſuch caution on their behalf; becauſe it is too often known, that numbers of them have died; not only at their firſt being turned in, but after ſome days, and even weeks have paſt; though it is certain, the greateſt danger is at firſt, by their voracious greedy feeding, and

the

the wind contained in this frim, rank graſs, that in half an hour has hoved their bodies like a bladder; and if not directly run about or ſtabbed in the flank they ſurely die.

Clover, by ſome is diſputed, whether it does moſt ſervice to the ground, by being eat all the ſummer, or mowed twice, once for hay, and the next time for ſeed. In my opinion, it advantageth the earth moſt, when the firſt crop is mowed, and all the reſt eat; for by letting it ſtand till it is fit to mow, it kills the weed by the cover of its thick, high head, hollows the ground, ſhades its own roots, and thereby prepares the ground for the better growth of the after-graſs. But if fed firſt, then the roots are expoſed to the ſummer droughts for want of that cover, and conſequently give the weed the greater opportunity of damaging the clover.

Many farmers, in our *Chiltern* incloſed country, contrive to ſow clover among oats, on purpoſe to employ and improve the ſame ground the next fallow ſeaſon, which otherwiſe would lie idle. By this they enjoy their land every year, and yet improve it, without breaking through the common covenant in leaſes, that the tenant ſhall not croſs-crop; for, though the clover may be called a crop, it may be alſo called a dreſſing of the ground, becauſe a good crop of clover ſo enriches it, either fed or mowed, that in ſome

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countries where I have travelled, it is under the appellation of the mother of corn; and, that clover, or ray-graſs, or trefoil, or all together, may take ſurely, our farmers give their wheat-ſtitches two or three ploughings. The firſt in *October*, or at the beginning of *November*, in a ſhape of ploughing adequate to the nature of the ſoil; which is an excellent piece of forecaſt, or huſbandry, if practiſed in ſtiffiſh loams, as well to kill the twitch, or couch-graſs, as the honeyſuckle, and other weeds, and reduce the earth into a fine tilth for ſowing and cauſing artificial graſs-ſeeds to take the ground, and flouriſh afterwards. And let me tell you, where ſuch land is well planted with clover-graſs, and the clover ſuffered to ſtand for a mowing crop till the latter end of *May*, and, if it proves a full crop, there may be expected as much profit from it as from a crop of wheat. A proof of this, by many, was experienced in the year 1742, which though the ſummer was ſuch a dry one, as returned us at *Gaddeſden*, and a thouſand other places, not half a full crop of natural-graſs, yet the clover rallied, (as we call it) and, by virtue of a good ſhower of rain or two, it got a covered head, enough to ſhade its roots, and grew into ſuch fine crops, as paid many as well or better than wheat-crops. An example of this I ſhall here ſtate as follows, *viz.*

	l.	s.	d.
A three acre and a half incloſed field, at *Gaddeſden*, yielded, at the firſt mowing, ſeven loads of clover-hay, ſold for thirty ſhillings a load out of the field.	10	10	0
A ſecond mowing returned four loads at the ſame price.	6	00	0
The after-meath graſs, which was fed by cattle, was worth ten ſhillings *per* acre.	1	15	0
Total profit in the ſummer, 1742——	18	05	0

CHAP. VI.

OF THE SEED.

How to know good from bad Clover ſeed.

THE purple ſort of this is that which had its due maturation in the field, and an eſcape from the heat and burning of a damp mow, and is therefore the right true ſeed which ought always to be coveted and ſown by thoſe who hope for ſucceſsful returns from ſowing it: this is truly that part which is beſt of all the three ſorts, and is the medium of the two extremes. The white or green ſort is the unripe part, and miſſed of that benefit in the field, which the purple had; for in the ear or head of this

this graſs, as well as in wheat and other grains, this ſeed has its ſeveral aſpects and proportions of bigneſs, before it is cut down, and will ſhew their differences accordingly after thraſhing and cleaning: where then this white or green ſort is in a large quantity, it is to be rejected; for though ſuch ſeed may take root and grow, it will prove diminutive graſs, and be ſooner overcome by the froſts and wets, or droughts, worms, &c. than the fine purple ſort. The reddiſh ſort is the worſt of all; though this might be as good as the beſt, when it was brought out of the field, but was afterwards too much heated or burned in the mow, which occaſions its reddiſh colour, and deſtroys in a great meaſure the vegetative part of the ſeed. From whence I conclude that, where clover-ſeed abounds moſt with the large purple ſort, it is then ſo much the more valuable: but, for a farther proof of the goodneſs of this ſeed, heat a ſhovel half red hot, and put ſome ſeed into it, the good will ſnap, and the bad will burn away. Kiln-dried clover-ſeed may be diſcovered by its igneous ſmell.

Quantity to be Sown.

Twelve pound of clover-ſeed ſows an acre of ground well. Trefoil in hull, two buſhels ſows an acre. Ray-graſs the ſame quantity.

An author ſays, that five or ſix pound of this ſeed is enough to ſow among grain: it is true, that there has been good crops followed this quantity, where it has met with a right ground, management and ſeaſon; but that happineſs is not always to be truſted to; and therefore we generally ſow ten or twelve pounds on an acre for fear of the worſt, that often happens from the ſlug, fly, froſt, wets and winds: now here is wanting that neceſſary caution that ſhould have been tacked to it, that the clover muſt not be ſowed at the ſame time the grain is, but only rolled in, about a fortnight or three weeks after; for if it is, and a ſhowery ſummer ſucceed, it is two to one odds, in my opinion, if the crop is not a great part ſpoiled by the clover's luxuriancy, as I have known it ſeveral times do.

END *of the* FIRST VOLUME.

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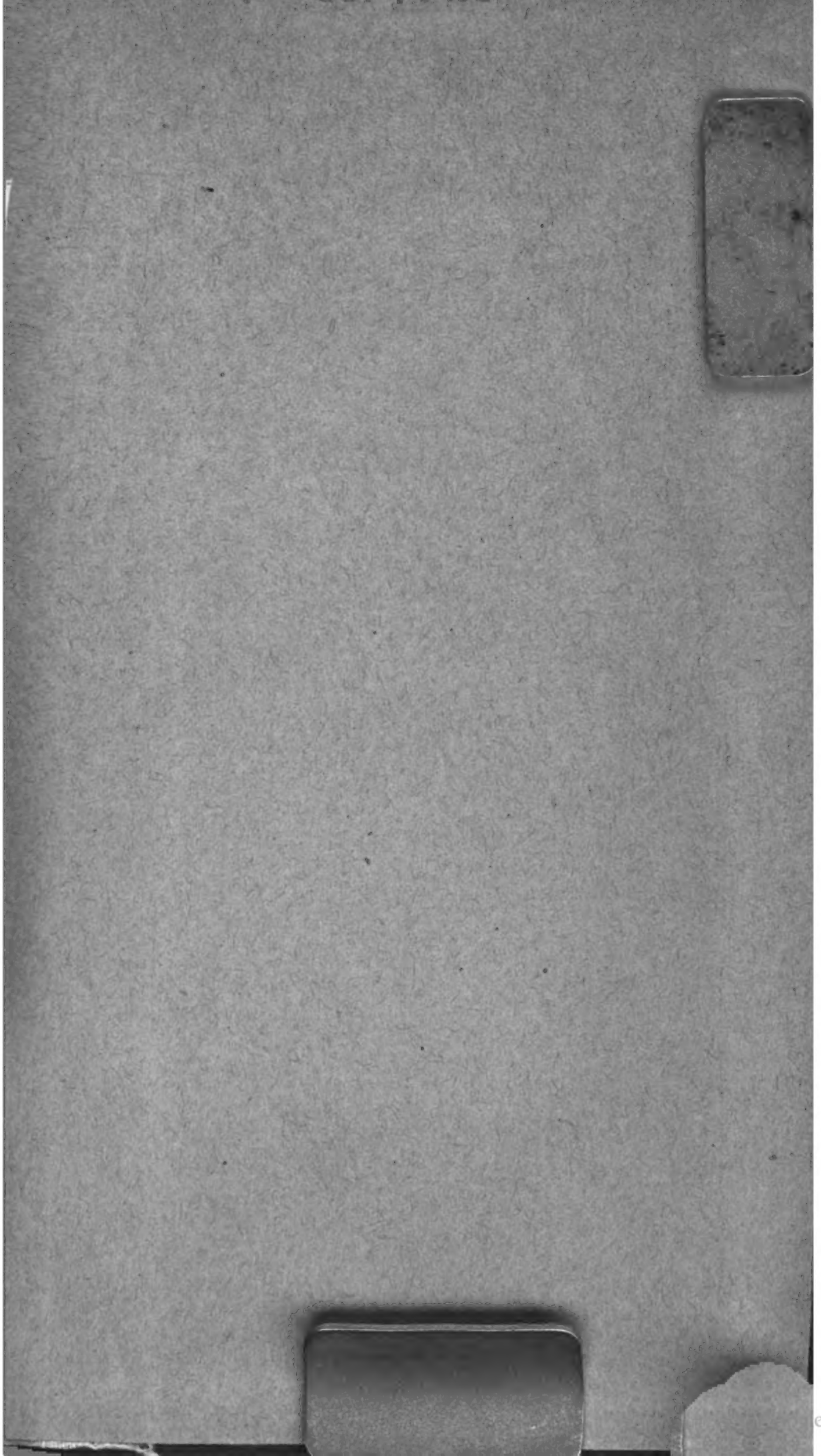

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